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ABSTRACT
This report covers the research activities undertaken during the first phase of a project, the purposes of which were (1) to determine actual requirements for library resources by elementary and secondary school students in Philadelphia and to evaluate existing library resources in terms of needs and standards and (2) on the basis of these data, to outline the respective roles of the several school systems and the public library system in providing needed resources, including joint planning of services, facilities, and technological innovations. Pre-elementary, elementary, and secondary students in the public, Archdiocesan, private, and independent schools in Philadelphia were included in the study. Phase I activities covered by the report are project organization, project planning and research design, design and pretest of data-gathering instruments and procedures, evaluations of the pretests, sampling methodology for field survey of approximately 60 schools, and school enrollment estimates by system and grade-group for use in projecting student library resource requirements to 1990. The major instruments which were designed, pretested, and evaluated in Phase I (student questionnaire, teacher questionnaire, school library questionnaire, public library questionnaire, and school and public library use checklists) are included in document ED 031 611, a supplement to this report. (JH)

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STUDENT LIBRARY RESOURCE REQUIREMENTS IN PHILADELPHIA

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School District of Philadelphia
21st Street and the Parkway
Philadelphia, Pa. 19103

September 1969

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
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STUDENT LIBRARY RESOURCE REQUIREMENTS IN PHILADELPHIA
PHASE I - DESIGN AND PRETESTS

John Q. Benford
School District of Philadelphia

September 1969

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SUMMARY

1. Nature and scope of the project

The purposes of the project are (1) to determine actual requirements for library resources by elementary and secondary school students in Philadelphia and to evaluate existing library resources in terms of needs and standards, and (2) on the basis of these data, to outline the respective roles of the several school systems and the public library system in providing needed resources, including joint planning of services, facilities and technological innovations.

Pre-elementary, elementary, and secondary students in the public, Archdiocesan, private and independent schools in Philadelphia are included in the study. Library resources are defined as reading materials, audio-visual materials and equipment, personnel, physical facilities, and services of the school and public libraries.

The project is a cooperative undertaking of the Philadelphia public, Archdiocesan, private and independent schools, and of the Free Library

Phase I activities, which are covered in this report, are project organization, project planning and research design, design and pretest of data-gathering instruments and procedures, evaluations of the pretests, sampling methodology, and school enrollment estimates.

2. Project Organization

The project has been financed through a two-year grant from the Office of Education, U. S. Department of Health, Education and Welfare, to the School District of Philadelphia. The School District has contracted with the University of Pennsylvania for project planning and direction, provided by the Government Studies Center, Fels Institute of Local and State Government. John Q. Benford, Senior Research Associate at Fels Institute, is Project Director.

A research center for the project has been set up in center city offices close to the public and Archdiocesan school offices and the Free Library. The center has a staff of three full-time professional and one full-time secretarial personnel. Dr. Lowell A. Martin is Project Consultant. Consultants in the areas of demography and statistics have also been retained. Part-time research assistants are also available for field survey work.

An Inter-Agency Committee, composed of representatives from the cooperating organizations and from college and university libraries, works closely with the project staff.

3. Project planning and research design

Statements of project goals, scope, and definitions were prepared in consultation with curriculum and program supervisors and specialists in

the Free Library, and project consultants, and through review of pertinent literature compiled with the assistance of a Free Library staff member.

A comprehensive set of research questions directed to each of the project's goals was developed and evaluated. These were reviewed and revised in consultation with the above noted specialists.

Outlines of information needed were prepared; sources of information were identified; procedures, schedules, and staff and cost estimates were prepared; and a detailed schedule of activities for each study component was prepared and checked out with personnel in the cooperating school and library organizations.

4. Design and pretest of data-gathering instruments

Six major instruments were designed: student questionnaire, teacher questionnaire, school library questionnaire, Free library questionnaire, school library use checklist, and public library use checklist. "Digitek" answer forms were designed for each instrument. All materials were reviewed by appropriate school and library staff and by all consultants.

Respondent groups for the pretests were selected by the project's statistical consultant, and all arrangements for setting up and administering the pretests were prepared and cleared with school and library officials thirty days in advance of the pretest period.

The pretest groups included the following:

(1) approximately 330 students in the 4th, 6th, 8th, 10th, and 12th grades in five public, four Archdiocesan, and one independent schools,

(2) teachers of the classes selected,

(3) school librarians in the ten schools,

(4) approximately 860 students using three school libraries on one day,

(5) approximately 480 patrons of a public library on one day, and

(6) head librarians in three branches of the Free Library.

The student questionnaires were administered by teachers, and the teacher and librarian questionnaires were self-administered. Checklists were administered by graduate students trained and supervised by Research Center staff.

5. Evaluation of the Pretests - Purposes and Method

The purposes of the pretests were (1) to determine the reliability of the several instruments in providing information required for the survey, (2) to determine the extent of, and the reasons for, missing or erroneously

recorded data, (3) to evaluate the pattern of responses in terms of their completeness, consistency, and illustrative substantive content, (4) to provide statistical assistance in selection of the final sample, and (5) to determine the adequacy of procedures for administration of the field survey activities and for data processing.

The evaluations were carried out, using (1) questions to respondents regarding deficiencies in the instruments and (2) a comprehensive set of analyses, using the computer facilities of the University of Pennsylvania Computer Center.

6. Evaluation of the Pretests - Results

Although the instruments, generally, functioned quite well, each proved to have certain deficiencies. The student questionnaire was too long for many students to complete in a normal class period, and it proved too difficult for 4th graders and the lowest achieving students. Neither it nor the library use checklists produced a precise statement of library needs. The teacher and librarian questionnaires contained questions which proved confusing to the respondents. Certain words in all of the questionnaires such as "some", "sometimes", "often", were not precise enough and required definition. Some of the language in the public library questionnaire did not accord with terms in common use by library personnel.

Revisions have been made to each instrument to eliminate, if possible, all deficiencies. A new, and simple questionnaire has been designed for 4th grade students and is being considered for low achieving students.

All plans, schedules, and procedures for preparation of the pretests, for administration of the instruments, and for processing data were highly successful.

7. Sample design

The total sample for the field surveys in Phase II will be composed of the following:

- 55 to 60 pre-elementary, elementary, and secondary public, Archdiocesan, private and independent schools
- 12,000 students
- 300 to 350 teachers
- 30 to 35 school librarians
- An as yet undetermined number of school and public libraries for checklist administration.

The student-teacher-school librarian sample cells constitute a sample "package", which will permit analysis of the relationships among teacher assignments, student library activities, and library resources.

In order to draw the samples, schools in the public and Archdiocesan systems will be stratified by three achievement levels and six grade levels. Private and independent schools will be stratified by the same variables. Two classes will be drawn in each group for each of the 2nd, 4th, and 6th grades, and three classes will be drawn for each of the 8th, 10th, and 12th grades.

8. Estimates of future student enrollments

Estimates of future enrollments have been prepared by an expert in demography and have been reviewed by population specialists in the school systems, the Philadelphia City Planning Commission, and the Department of Licenses and Inspections. These estimates by system and by grade-group, will be used to project student library resource requirements to 1990.

I. NATURE AND SCOPE OF THE PROJECT

This report covers the research activities undertaken during the first phase of a project, the purposes of which are (1) to determine actual requirements for library resources by elementary and secondary school students in Philadelphia and to evaluate existing library resources in terms of needs and standards and (2) on the basis of these data, to outline the respective roles of the several school systems and the public library system in providing needed resources, including joint planning of services, facilities, and technological innovations. More specifically, the goals are:

1. to determine the kinds and extent of library resources required by students in Philadelphia now and in the future,

2. to determine the availability and adequacy of library resources now provided for students in Philadelphia,

3. to determine what is required (1) to effect greater use by students of existing library resources and (2) to make those resources more accessible,

4. to determine what additional library resources are needed to meet student requirements, and

5. to define the roles of the school and public libraries in providing resources for students, including joint planning of services, facilities, and technological innovations.

Pre-elementary, elementary and secondary students in the public, Archdiocesan, private and independent schools in Philadelphia are included in the study. Library resources are defined as reading materials, audio-visual materials and equipment, personnel, physical facilities, and services of the school libraries and the Free Library of Philadelphia. The project is a cooperative undertaking of the Philadelphia public, Archdiocesan, private and independent schools, and of the Free Library. Representatives of these systems are included on the project's Inter-Agency Committee.

Phase I activities covered by this report are (1) project organization, (2) project planning and research design, (3) design and pretest of data-gathering instruments and procedures, (4) evaluations of the pretests, (5) sampling methodology, and (6) school enrollment estimates.

II. PROJECT ORGANIZATION

The project is jointly sponsored by the Philadelphia Board of Education and the Trustees of the Free Library of Philadelphia. As recipient of a grant from the U. S. Office of Education, the School District of Philadelphia contracted with the University of Pennsylvania for project planning and direction to be provided by the Government Studies Center of the University's Fels Institute of Local and State Government. John Q. Benford, Senior Research Associate at Fels Institute, was assigned as Project Director. A research center for the project was set up in offices within walking distance of the administrative offices of the Philadelphia School District, the Philadelphia Archdiocesan Superintendent of Schools, and the Free Library. Staff at the Center included a Research Associate and Liaison Staff, a Research Assistant, and a clerk typist. Dr. Lowell A. Martin, Professor at Columbia University Graduate School of Library Science and former Vice President of Grolier, Inc., is Project Consultant. Consultants in the areas of statistics and demography were also retained, and several part-time research assistants were brought on the Center staff later in the year.

The planning group which developed the project proposal was continued and enlarged in membership as the Inter-Agency Committee to provide coordination and inter-agency cooperation for the project. The public, Archdiocesan, private, and independent schools, Free Library, and college and university libraries are represented. Committee membership includes administrators, teachers, librarians, parents, and students. A list of Committee members is listed in Appendix A. Three meetings of the Committee were held during Phase I. A number of the members of the Committee have worked closely with the Research Center staff during the same period.

III. PROJECT PLANNING AND RESEARCH DESIGN

The first step was to develop precise statements of project goals, scope, and definitions. Conferences were held with every major curriculum and program supervisor in the public and Archdiocesan school systems, with professional personnel of the Free Library, and with project consultants. With the assistance of a specialist in the Free Library, a thorough review was undertaken of pertinent literature in the areas of curriculum philosophy, concepts, and methods; library and information science; standards; related research activities; and educational and library technology. These processes were helpful in clarifying goals and in defining the limits of the study. Through these reviews and discussions, a comprehensive set of research questions directed to each of the project goals was developed. Each of the specific questions was evaluated in terms of (1) its relevance to the study goals and scope, (2) kinds of information required to answer the question, (3) sources of information, (4) methods, time, and costs required to obtain the information, and (5) the probability of obtaining reliable information. Several revisions of the research questions were made in the process of reviews with program specialists and consultants. A set of the questions is included in Appendix B.

With the revised research questions in hand, outlines of information needed, sources of information, procedures for compiling, tabulating and analyzing the information, time schedules, and staff and cost estimates were prepared. A detailed schedule of activities for each component of the study was developed and checked out with research and program personnel in the school and library systems.

IV. DESIGN AND PRETEST OF DATA-GATHERING INSTRUMENTS

The research design called for extensive compilation of information from several sources: students in elementary and secondary grades, teachers and school librarians, heads of public libraries, and patrons of public libraries. Six instruments -- four questionnaires and two checklists -- were designed to gather information from those sources. A complete set of instruments, instructions, and related materials is included as a special Attachment A to a single copy of this Report. The instruments are listed below:

1. questionnaire for students in the 4th, 6th, 8th, 10th and 12th grades,

2. questionnaire for teachers in each of those grades,

3. questionnaire for librarians in elementary and secondary schools,

4. questionnaire for heads of public libraries,

5. library use checklist for students in elementary and secondary schools, and

6. checklist for patrons of public libraries.

Initially, separate questionnaires were designed for students in the lower grades and for those in the higher grades. The same kinds of information were sought from all grades and, through the process of review with teachers, librarians, and program specialists, it was decided to employ a standard questionnaire for all grades. The questionnaires which were to be pretested with 4th and 6th grade students were modified to eliminate several questions relating to the use of college and university libraries.

A special "digitek" answer form was designed for each of the instruments to permit rapid data processing. "Digitek" forms have been used in connection with achievement tests in nearly all of the schools in the City and, therefore, were familiar to most students. The two library use checklists (items 5 and 6, above) were modified "digitek" forms which incorporated both answers and questions on the same form.

Preliminary drafts of the instruments and answer forms, together with the procedures for administering them, were reviewed by program supervisors, reading specialists, library supervisors, research staff, and principals in the school systems and the Free Library. Their suggestions and questions were invaluable in revising the instruments and the procedures for administering them.

The respondent groups for pretesting of the six instruments were selected by the project's statistical consultant, with the objective of covering the spectrum of types and levels of schools, students, teachers, and libraries which will be included in the sample for Phase II of the project. Various schools, grade levels, achievement levels, and libraries in the three school systems (public, Archdiocesan, and private) were deliberately selected in order to acquire experience on responses to the instruments by different subgroups of

interest in the target population. The pretest group specifications are given in Appendix C. In summary, they included:

1. approximately 330 students in the 4th, 6th, 8th, 10th, and 12th grades in five public, four Archdiocesan, and one independent schools;

2. the teachers of those students;

3. the school librarians in those schools;

4. approximately 860 students using three school libraries on one day;

5. approximately 480 public library patrons in one branch library of the Free Library of Philadelphia; and

6. the head librarians in three Free Library branches.

Plans and arrangements for the pretests were cleared well in advance of the scheduled dates with school and library officials. Principals, teachers, and librarians were given a month's prior notice of dates and arrangements. Orientation sessions for teachers, school librarians, and public librarians were conducted by the research center staff. University graduate students were retained and trained for administration of the school and public library use checklists.

Procedures for administering the instruments were as follows:

1. Student questionnaires were administered by teachers during regular class periods.

2. Questionnaires for teachers, school librarians, and heads of public libraries were self-administered on an appointed day.

3. Library use checklists were administered by graduate students under the supervision of project staff.

Preparation, delivery, and retrieval of questionnaires, answer forms, and checklists were handled entirely by project staff.

V. EVALUATION OF THE PRETESTS - PURPOSES AND METHODS

The purposes of the evaluation were (1) to determine the reliability of the several instruments in providing information required for the survey, (2) to determine the extent of, and the reasons for, missing or erroneously recorded data, (3) to evaluate the pattern of student responses in terms of their completeness, consistency, and illustrative substantive content, (4) to provide statistical assistance in selection of the final sample, and (5) to determine the adequacy of procedures for administration of the field survey activities and for data processing.

Two major types of evaluations were carried out. One, evaluation forms were completed by students, teachers, and librarians, and interviews with students were conducted immediately following the completion of administration of each type of instrument. Two, a comprehensive set of analyses was undertaken using the computer facilities of the University of Pennsylvania Computer Center. These methods are detailed below.

A. Use of evaluation forms and interviews

The reactions of each teacher, school librarian and public librarian to the questionnaires employed in the pretest were obtained through "evaluation forms" which were included in the package of materials given to the respondents. The forms were enclosed in sealed envelopes with the instructions that they were not to be opened until the basic questionnaire had been completed.

The respondents were asked to identify confusing and difficult questions, to suggest other questions that ought to be included, and to indicate the amount of time required to complete the questionnaires. Completed forms were received from all respondents.

As a means for evaluating the consistency of student responses to questions in the basic questionnaire, a "check questionnaire," which contained selected questions from the basic instrument, was administered to a sample of 25 students in five of the pretest schools on the same day that the pretests were conducted. These students also were interviewed by staff members of the Research Center, using an evaluation form similar to those employed with teachers and librarians.

The evaluation forms are included in Appendix D.

B. Analyses of survey data

1. Analysis of Missing or Erroneously Recorded Data

All data from the librarian, teacher, and student questionnaires were listed by the computer and visually checked for missing items (e.g., grade, curriculum, etc.) and for errors on the answer sheets or punched cards. Corrections on punched cards were made where the error or omission was essential to the analysis. Changes in

the processing of questionnaires from the time of their actual administration through their conversion to punched cards or tape will be used to minimize these types of data errors for the fall survey. In addition, computer programs will be designed to duplicate the visual data checking routines in order to cope with the larger sample size of the fall survey.

2. Completeness of Response

This analysis focused on two different aspects of the students' responses. The first had to do with the percent of questions completed, that is, 100%, less than 80%, less than 60%. This analysis assisted in determining whether non-responses were a result of grade level of the respondent and/or the characteristics of the questionnaire. The same routine as described above was used to determine the number of non-responses by grade and school.

The second was concerned with the frequency with which different questions were left unanswered. A computer program, called FREQUENCY COUNT, was written to assist in performing this analysis. The program is general in design, allowing the user to specify his own format and number of different data series to be treated separately. This program permitted an analysis not only of the extent to which questions were left unanswered but also how this related to the point in the survey instrument at which the question fell. It also provided for an analysis of "impossible" responses - those which fall outside the true range of responses for any question. The results of both types of analysis indicated that either the student questionnaire must be reduced in size or more time must be allowed for administration in order to increase the overall completeness of the responses.

3. Response Consistency

Four sets of questions were used to determine the response consistency of students and the variation of this consistency by grade level. For each set of questions a "consistent response pattern" was defined and a CONSISTENCY CHECK computer program was used to trace each student through his pattern of responses. The program was designed to keep track of students separately by grade in order to examine the variation in consistency by grade level and achievement level of the school from which the grade was sampled.

4. Substantive Analysis

This analysis focused on the data description of student, teacher, and librarian questionnaires, as well as the library use checklist for school and public libraries. Four computer programs, including FREQUENCY COUNT, were written and used for this analysis. The teacher and librarian responses were analyzed using only the FREQUENCY COUNT program.

In addition to the tabulation provided by the FREQUENCY COUNT Program, student responses were tabulated using a CROSS TABULATION program. This program calculated two-way tables absolute numbers and percentages of either row or column totals) for a wide range of questions from the survey instruments. These tables provided a preview of response patterns expected from the fall sample.

Two computer programs, TIMEODAY and TIMEHIST, were written and used to describe the response patterns on the Library Use Checklist. The TIMEODAY program calculated the student load on libraries at different time intervals of the day. The TIMEHIST program provided a histogram of the percentage of library users who stayed in the library for different lengths of time. Taken together, these two data description programs provided good visual display of library use patterns and how they differ between library systems.

5. Analysis of School Data for Sampling Design

Previous year achievement scores were collected and recorded for each grade and school in the Philadelphia Public School System. The techniques of analysis of variance and simple correlation were used to determine the association of achievement and school area by grade in order to determine the need for stratification in the pretest and final sample designs.

VI. EVALUATION OF THE PRETEST - RESULTS

A summary of results is presented below for each of the six instruments, followed by a summary of the evaluation of survey procedures. Selected tables are presented in Appendix E.

A. Student questionnaire

1. With one major exception, the questionnaire functioned well in terms of producing the kinds of information deemed essential in the research design. The exception was that a clear and precise statement of student requirements for various materials could not be produced from the information obtained. The revised draft of the questionnaire has corrected this deficiency.

2. Of the 331 students who returned answer sheets, 232 (or 70%) answered every question. The questionnaire clearly proved too long for a number of students and too difficult for 4th grade students and for low achieving students. The extent of non-response to questions increased with the number of questions: through question #24 (of a total of 76 questions for elementary and 80 questions for secondary students) the percent of non-response was 1.5; between questions #25 and #58, non-response ranged from 3.9% to 10.3%; after question #58, non-response increases with each question, ranging from 12.7% to 25.4%. The percentages of all questions answered by the two 4th grade classes were 19.0 and 56.9. For low achieving students in the 6th, 10th, and 12th grades, the percentages of questions answered were 51.6, 31.2, and 69.2 respectively. All other groups in the pretest did better, ranging from 77.8% to 100.0%. To improve the probability of more complete answer sheets, a special questionnaire has been prepared for 4th grade students, the questionnaire for 6th to 12th grade students has been simplified, and a longer period for administering the questionnaire to low achieving students is being considered.

3. Few errors in marking the answer sheet were made by the pretest groups. Out of a possible maximum number of errors for the 331 students of 25,924, only 116 errors were made. Moreover, no answer sheets had to be discarded for any reason.

4. The check of inconsistent answers for four sets of 13 questions indicated a total of 42 students who gave one or more inconsistent responses. Some revisions have been made in wording of the questions and the answer choices to minimize possible confusion on the part of students.

5. Quite a number of students chose to write in their own answers to questions where that opportunity was provided. The results have proved helpful in substituting new answer choices in some instances and in revising answer choices to make them more discrete.

6. A single questionnaire for students in the 6th to 12th grades proved feasible. These students had little or no major difficulty in handling the questionnaire other than having insufficient time to complete the questionnaire.

B. Teacher questionnaire

1. Nine of the 12 teachers in the pre-test failed to answer all questions. Five of these answered all but one question, and the other four answered all but two, three, or four questions. In most instances, the basic reason was alleged confusion in the question statement.

2. Most teachers complained that certain words (e.g., "often", "sometimes") were meaningless and provided no choice.

3. A few inconsistencies between teacher and student answers and between teacher and school librarian answers to the same questions were discovered. Somewhat ambiguous wording of questions and answers partly explains the inconsistencies.

4. Additional questions, covering such areas as teacher assignments of particular kinds of materials and attitudes towards library collections, were recommended.

5. The deficiencies noted above have been corrected in the revised questionnaire.

6. Teachers encountered no difficulty in completing the questionnaire in less than 60 minutes or in using the digitek answer form.

C. School library questionnaire

1. Five of the ten school librarians did not complete the questionnaire, for a total of eleven questions not answered (of a total of 660). Most of the non-response was explained by misinterpretation of instructions related to skipping certain questions. Several librarians indicated that one or more questions were not applicable to their library situation.

2. Words such as "often", "some", and "sometimes" were confusing to some librarians.

3. Answer choices to two questions were not discrete enough.

4. Responses to four questions were inconsistent with teacher responses to identical or closely related questions.

5. Revisions of the librarian questionnaire have corrected the deficiencies noted.

D. Free library questionnaire

1. All questions were answered by each of the three public librarians in the pretest. None had difficulty using the answer form. One of the three librarians spent nearly two hours completing the questionnaire, part of the time involving consultation with Free Library specialists.

2. The instrument generally did not produce the required information in precise and meaningful form. The basic reasons were (1) ambiguity of the language used to identify clientele (age groups were not separated in the questions), (2) some words and phrases not commonly used in the Free Library System, and (3) lack of definitions for certain answer choices (e.g., "some", "frequently", "sometimes").

3. Some of the quantitative data requested from branch librarians were not readily available (e.g., population of the area served, percent of library patrons who were elementary and secondary school students).

4. The questionnaire has been thoroughly revised, with the assistance of Free Library specialists and the Project Consultant. The deficiencies noted have been eliminated.

E. School and public library checklists

1. The two checklists functioned well. Less than ten percent of the 1,300 returns had to be discarded because of mutilation or unusable responses.

2. Two problems were noted in both checklists: (1) there was insufficient data on numbers and kinds of materials used and charged out, and (2) users generally tended to fill in the forms before they had completed their activities in the libraries.

3. Revisions to the checklists will correct the problem of insufficient data, and planned changes in procedures will minimize if not eliminate the second problem.

F. Survey procedures

1. The plan and schedule for the pretests proved highly successful. Thirty days' notice to school and library officials enabled project staff to obtain necessary clearances and to establish dates and procedures well in advance of the pretest period, orientation sessions were conducted by the staff for all teachers and librarians who participated in the pretests, questionnaires and other materials were delivered to schools and libraries and were returned without any serious delays or problems, and all other pre-scheduled activities were carried out according to plan.

2. Procedures for administration of the questionnaires worked according to plan. With the few exceptions noted in Sections B, C, and D, self-administration by Teachers and Librarians of their respective questionnaires resulted in no serious difficulties or delays. Again, except for the element of time, none of the problems noted with respect to the student questionnaire (Section A, above) could be traced to administration procedures. Simplification of the questionnaire and extension of the time period for under-achieving students should enable most students to complete the questionnaire.

3. Administration of the school and public library use checklists encountered a few procedural problems: (1) project staff had insufficient time during peak periods of usage to adequately instruct young children in the use of the checklist, (2) some students who came into the school libraries more than once during the day were reluctant to complete a second or third checklist, and (3) as noted in Section E, users tended to fill in the forms before completing their activities. Additional field survey staff will be used in the Fall survey in order to provide for adequate instruction and assistance to library users.

VII. SAMPLE DESIGN (*)

A. Population of interest - purpose of the sample design

The population of interest, or universe, consists of all pre-elementary, elementary and secondary school students attending public, Archdiocesan, private and independent schools in Philadelphia. Also included are the teachers and librarians in these school systems and the librarians of the Free Library of Philadelphia. See Table 1, below.

It is the purpose of the design to provide city-wide estimates of various population characteristics and further to permit estimation of disaggregated subgroups arrayed in contingency tables of various orders. The reliability of these estimates is to be calculable where appropriate.

Table 1. Philadelphia Student Population (1968-69)

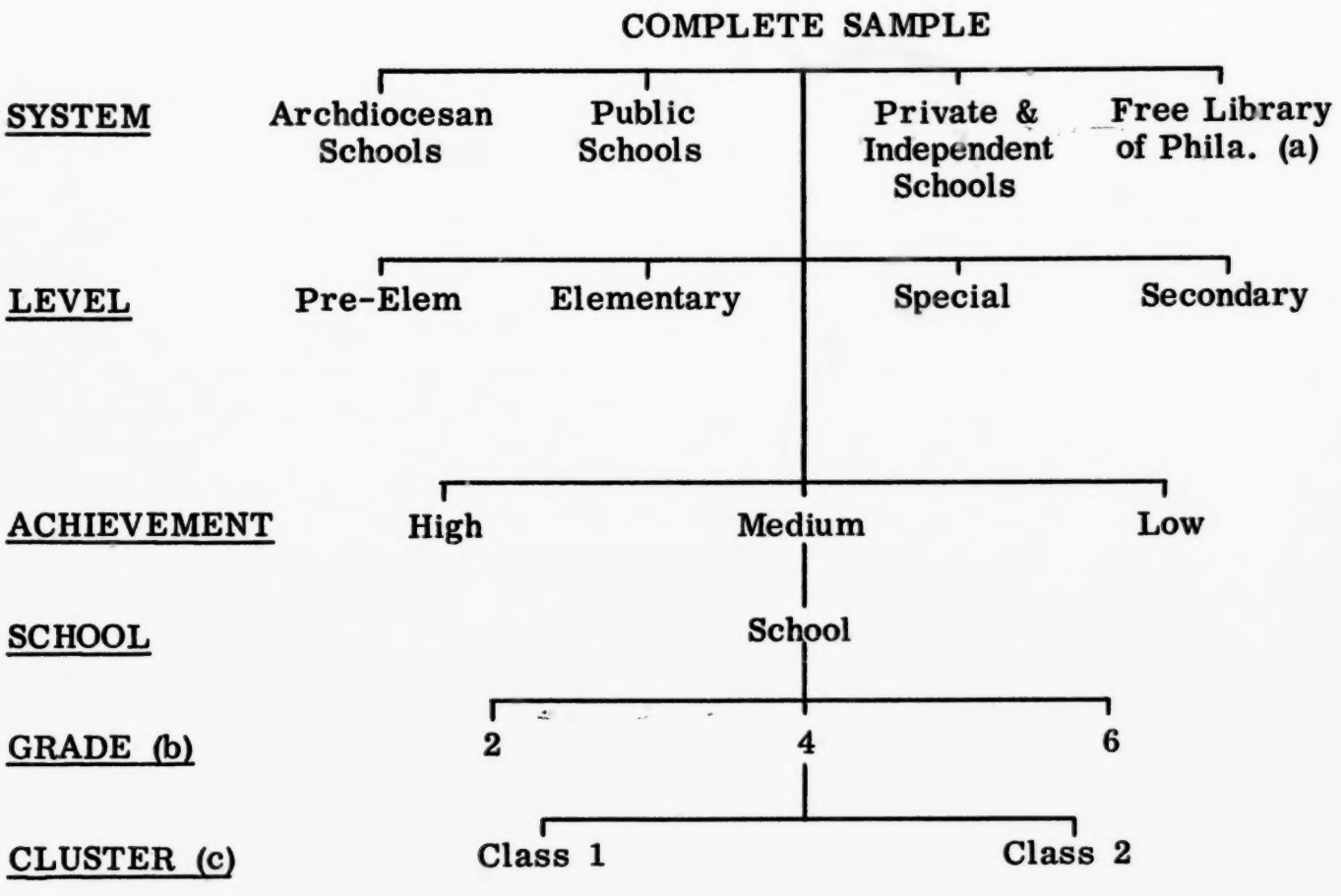
	Pre-elementary	Elementary	Secondary	Special Programs	Total
Public Schools	32,858	137,420	96,022	17,010	283,310
Archdiocesan Schools	2,614	106,255	34,972	350	144,191
Private and Independent	1,990	2,551	7,269	1,392	13,202
					440,703

B. The sample design

The design is a multi-stage, cluster sample whose structure is given schematically in Table 2. Within the school systems, the sampling unit, which is a cluster in this case, is the classroom (home room) plus its teacher and, where appropriate, the school librarian. The primary sampling unit (PSU) is the school, and the secondary sampling unit (SSU) is the grade within a school. Grades 2, 4, 6, 8, 10, and 12 will be sampled, with grade 2 being sampled less extensively than the other grades.

(*) Prepared by Martin S. Rosenzweig, Assistant Professor of Statistics and Operations Research, The Wharton School, University of Pennsylvania, who is statistical consultant for the Project.

Table 2. Organization of the Sample



(a) Branch libraries serving the enrollment areas of elementary and secondary schools in the sample will be selected.

(b) Grades 8, 10, 12 for secondary schools.

(c) Three classes per grade will be drawn in secondary schools.

In order to meet the goal of satisfactory estimates at various levels of disaggregation, we expect some marginal loss in precision at grosser levels of estimation. That is, the convenience of having equal "cell" numbers for cross-classified data rules out schemes of "optimum" allocation. Using Table 1, we generate the number of cells of interest found in Table 3.

Table 3. Cells

Sub-Division	# Cells	# Classrooms	Approx. Class Size	# Students
Public				
Elementary	24	48	33.5	1,608
Secondary	36	108	28.5	3,078
Vocational	6	6	30	180
Special & Pre-Elementary (a)				
Archdiocesan				
Elementary	24	48	45	2,160
Secondary	36	108	40	4,320
Special & Pre-elementary (a)				
Private & Independent				
Elementary	2	4	20	80
Secondary	3	9	17	153
Other (a)				

(a) To be determined

Tables 2 and 3 suggest that the total sample will contain approximately 55-60 schools, 12,000 students, 300-350 teachers and 30-35 school librarians.

C. General Observation

This study provides certain advantages over the average sampling problem. The population list or frame is unusually complete and current. This will improve both coverage and estimation reliability.

In each school, a list of classrooms in each grade of interest will provide the frame from which the appropriate number of classrooms will be drawn at random. Further, to stratify by achievement level, average achievement scores (from the previous year) for each school will be used.

The lack of standard achievement tests for the three school systems creates the problem of trying to make comparisons across school systems. Efforts will be made to obtain equivalence among the scores.

VIII. ESTIMATES OF FUTURE SCHOOL ENROLLMENTS

Estimates of school enrollments (K-12) for the City of Philadelphia for the years 1970, 1980, and 1990, were prepared by Arnold R. Post, Consultant on Demography. A copy of Mr. Post's report is included in Appendix F.

The enrollment data will be used in estimating the library resource requirements of students over the next 20 years. Estimates were prepared by Mr. Post in consultation with demographic experts in the public and Archdiocesan school systems, the Philadelphia City Planning Commission, and the Philadelphia Department of Licenses and Inspections. Copies of the report have been submitted to those organizations for review.

BIBLIOGRAPHY

ALA Bulletin. Service to Students -- a Joint Responsibility of School and Public Libraries. A reprint for the American Association of School Librarians of articles which appeared in the ALA Bulletin, June 1965 - January 1966, Chicago: American Library Association, 1965.

American Library Association. Costs of Public Library Service, 1963. A Supplement to Public Library Service, A Guide to Evaluation, with Minimum Standards. Chicago: American Library Association, 1964.

_____. Minimum Standards for Public Library Systems, 1966. Chicago: American Library Association, 1967.

_____. National Inventory of Library Needs. Chicago: American Library Association, 1965.

_____. Standards for Children's Services in Public Libraries. Chicago: American Library Association, 1964.

_____. Student Use of Libraries. Papers of the Conference within a Conference, a Feature of the 1963 American Library Association Conference. Chicago: American Library Association, 1964.

American Library Association, American Association of School Librarians. School Library Development Project. Studying School Library Services: a Bibliography of Surveys, Evaluation tools and study reports. Chicago: ALA School Library Development Project, 1961.

American Library Association and National Education Association. Standards for School Media Programs. Chicago: American Library Association, 1969, Washington: National Education Association, 1969.

American Society of Planning Officials. Planning the Public Library. ASPO Planning Advisory Service Report No. 241. Chicago: American Society of Planning Officials, December, 1968.

Avram, Henriette D. "MARC is a Four-Letter Word." Library Journal, Vol. 93, No. 13, July 1968, pp. 2601-2605.

Batchelder, Mildred L. "Public Library Influence on School Libraries." Library Trends, Vol. 1, 1953, pp. 271-285.

Carl, Herbert A. (ed.). Statewide Long-range Planning for Libraries. Report of conference sponsored by Library Services Branch, U. S. Office of Education, Chicago, September 19-22, 1965. Washington: U.S. Government Printing Office, 1966.

Committee on Education and Labor, U. S. House of Representatives. A Compilation of Federal Education Laws. Washington: U. S. Government Printing Office, 1969.

Conant, Ralph W. "Black Power in Urban America." Library Journal, Vol. 93, No. 10, May 15, 1968, pp. 1963-1967.

Cory, John M. "Ad Hoc Harmony." Library Journal, Vol. 94, No. 2, January 15, 1969, pp. 264-266.

Cox, N. S. M., Dents, J. D., and Dolby, J. L. The Computer and the Library. Hamden, Conn.: Archon Books, 1967.

Cuadra, Carlos A. "Libraries and Technological Forces Affecting Them." ALA Bulletin, Vol. 63, No. 6, June, 1969, pp. 759-768.

Darling, Richard L. "More Honored in the Breach." Library Journal, Vol. 94, No. 2, January 15, 1969, pp. 261-262.

Ellsworth, Ralph E. and Wagener, H. D. (Ruth Weinstock, ed.). The School Library: Facilities for Independent Study in the Secondary School. New York: Educational Facilities Laboratories, 1963.

Estes, Nolan. "Educational Excellence: An End to Cultural Isolation." ALA Bulletin, Vol. 63, No. 2, February, 1969, pp. 221-225.

Frantz, John C. "Big City Libraries: Strategy and Tactics for Change." Library Journal, Vol. 93, No. 10, May 15, 1968 pp. 1968-1970.

Fulton, W. R. "Developing a Self-Evaluation Instrument for Appraising Educational Media Programs." Audio Visual Instructions, Vol. 11, No. 1, January, 1966, pp. 39-41.

Gaver, Mary Virginia. "Crisis in School Library Manpower - Myth or Reality?" School Activities and the Library. Chicago: American Library Association, 1967.

_____. Effectiveness of Centralized Library Service in Elementary Schools. New Brunswick, N. J.: Rutgers University Press, 1963.

_____. "Teacher Education and School Libraries." Service to Students -- A Joint Responsibility of School and Public Libraries, a reprint of articles which appeared in the ALA Bulletin, June 1965 - January, 1966, pp. 45-54.

Goodlad, John I. The Changing School Curriculum. Fund for the Advancement of Education. New York: 1966. School Curriculum Reform in the United States. New York: Fund for the Advancement of Education, 1964.

Greenaway, Emerson. "The Public Library Lure." Library Journal, Vol. 94, No. 2, January 15, 1969, pp. 263-266.

Hayes, Robert M. "The Child, the Computer and Literature." Top of the News, (reprint) Vol. 2, 3, April 1969, pp. 257-264.

Henne, Frances E. "Learning to Learn in School Libraries." Reprinted from School Libraries, May 1966.

_____. "The Basic Need in Library Service for Youth." Library Quarterly, Vol. 25, No. 1, January 1955, pp. 37-46.

_____. "The Move to School Autonomy." Library Journal, Vol. 94, No. 2, January 15, 1969, pp. 259-260.

Henne, Frances and Spain, F. L. "The School and the Public Library." Annals of the American Academy of Political and Social Science, Vol. 302, November 1955, pp. 52-59.

Knirk, Frederick G. and Childs, John W. (editors). Instructional Technology, A Book of Readings. New York: Holt, Rinehart and Winston, 1968.

Lowrie, Jean E. Elementary School Libraries. New York: Scarcecrow Press. 1961.

Mahar, Mary Helen (ed.). The School Library as a Materials Center: Educational Needs of Librarians and Teachers in its Administration and Use. Washington: U. S. Office of Education, 1963.

_____. "How do the Public Library and the School Library Supplement and Complement Each Other in Providing Services for Children, Youth and Young Adults?" Proceedings of the Eighth Institute on Public Management: Public Library - Public School Relationship. Madison, Wisconsin: Free Library Commission, February 1961.

Martin, Lowell A. Baltimore Reaches Out, Library Service to Disadvantaged (No. 3 in Deiches Fund Studies of Public Library Service.) Baltimore: Enoch Pratt Free Library, 1967.

_____. Students and the Pratt Library: Challenge and Opportunity (No. 1 in the Deiches Fund Studies of Public Library Service.) Baltimore: Enoch Pratt Free Library, 1963.

_____. Utilization in the Pratt Library (No. 2 in Deiches Fund Studies of Public Library Service.) Baltimore: Enoch Pratt Free Library, 1965.

Mathematica. On the Economics of Library Operation (Final Report submitted to the National Advisory Commission on Libraries, June 30, 1967). Princeton, New Jersey: Mathematica, 1967.

Michigan Department of Education. The Instructional Materials Center. Bulletin No. 369. Lansing: Department of Education, 1965.

Monypenny, Phillip. The Library Functions of the States. Commentary on the survey of library functions of the States. Chicago: American Library Association, 1966.

National Advisory Commission on Libraries. Library Services for the Nation's Needs: Toward Fulfillment of a National Policy. Washington: National Advisory Commission on Libraries, 1968.

National Education Association of the United States and American Textbook Publishers Institute Joint Committee. Guidelines for an Adequate Investment in Instructional Materials. A Report of the Joint Committee of the National Education Association and the American Textbook Publishers Institute. Washington: National Education Association, 1967.

NEA Elementary Instructional Service. The Elementary School Library. Washington: National Educational Association, 1966.

Nelson Associates. Public Libraries in the United States: Trends, Problems and Recommendations. A report prepared for the National Advisory Commission on Libraries. New York: Nelson Associates, Incorporated, 1967.

_____. School Libraries in the United States. A report prepared for the National Advisory Commission on Libraries. New York: Nelson Associates, Incorporated, 1967.

Pennsylvania Department of Public Instruction. School Library Standards. Harrisburg: Pennsylvania Department of Public Instruction, Bureau of Curriculum Development, (n.d.).

Salmon, Stephen R. (ed.). Library Automation - A State of the Art Review. Papers presented at the preconference institute on library automation. Chicago: American Library Association, 1969.

School District of Philadelphia, Division of Instructional Materials. The School Library as an Instructional Materials Center. School District of Philadelphia, November 1966.

Taylor, James, Mahar, Mary Helen, Darling, Richard L. Library Facilities for Elementary and Secondary Schools Washington: U. S. Department of Health, Education, and Welfare, Office of Education, 1965.

Taylor, Kenneth I. "Instructional Materials Centers and Programs." The North Central Association Quarterly, Volume XL, Fall, 1965, pp. 214-221.

U. S. Department of Health, Education and Welfare, Office of Education. Statistics of Public Libraries Serving Communities With at Least 25,000 Inhabitants. Washington: U. S. Department of Health, Education and Welfare, September, 1968.

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APPENDIX A

Inter-Agency Committee

Philadelphia Student Library Resource Requirements Project

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APPENDIX B

Research Design Questions

1. What library resources are called for by curriculum, courses of study, and instructional methods?

   (Note. Existing school programs, as reflected in curriculum guides, courses of study, and instructional methods, will be examined and the resource requirements of those programs will be noted as set forth explicitly or as implied in the programs.)

   1.1 What educational objectives are sought, with particular reference to the role of library resources in the educational process, through curriculum organization? How well are these objectives satisfied in actual practice?

   1.2 What range, depth, and forms of resource materials are called for by curriculum, courses of study, instructional methods and teachers' guides? What differences in materials' requirements are there between regular classes and (1) special classes (honors courses, educational improvement courses, and the like) and (2) newer and revised curriculum? To what extent are those resources made available in the school libraries? in the public library? in other libraries?

   1.3 What role do centrally prepared instructional materials (curriculum guides, courses of study, syllabuses, etc.) play with respect to library assignments? Is their use mandatory or permissive - for which schools and grades? How much use of these materials is actually made by teachers insofar as library assignments are concerned? To what extent are school and public library student collections determined by these materials?

2. What resource assignments are actually made by teachers?

   2.1 What kinds of resource assignments - books and non-book printed materials, audio-visual materials, realia, etc. - are made by teachers in (1) pre-elementary, (2) elementary, (3) secondary, and (4) special programs? To what extent are interrelated resources (e.g., printed plays and related recordings, filmstrips and related articles, etc.) indicated in teacher assignments?

   2.2 To what extent are assignments of library materials by teachers related to: the existence of a school library or instructional materials center in or near the school, the levels of achievement of their classes, curriculum guides and other program materials prepared by the school system, librarians' suggestions, and national curriculum guides and concepts?

2.3 Where and how do teachers obtain information about existing library resources? To what extent do teachers receive instruction in the use of libraries?

2.4 To what extent do teachers make use of school library resources in course work? How frequently are assignments of library resources made? How frequently do teachers take classes into the library? To what extent do teachers make use of audio-visual materials and equipment in the classroom? in the library?

2.5 To what extent do teachers direct students to use school libraries? other libraries? Do teachers make adequate scheduling provision for school library use - enough time for assignment research? regular library periods? What periods are set aside for students' library research (during school hours, after school hours, weekends)?

2.6 To what extent do teachers make group assignments of the same materials? To what extent do they work with librarians in preparing for group assignments?

2.7 To what extent do teachers and librarians work together in deciding which materials should be acquired for school libraries? for children and young adult collections in public libraries?

2.8 To what extent do teachers and curriculum supervisors provide reading lists and similar materials to librarians?

3. <u>What instructions and other assistance in the use of library resources are provided students</u>?

3.1 When (at what age, or in which grade) are children introduced to library resources? What form and content does such introduction take? Who (teacher, librarian) provides the instruction?

3.2 How regularly and frequently are instruction and guidance in use of library resources provided? Are these part of an integrated, continuing program?
- Are visits to the school library included as part of the instruction? How regularly? To the public library? How regularly?

3.3 What groups of students are covered or are not covered, by these library instruction programs? How are they made understandable to lowest achievers? What procedures are used to insure that every student receives the information?

3.4 What instructions for locating library materials are included as part of reading assignments by teachers?

3.5 What descriptive printed materials on library locations, collections, services, etc., are provided students?

3.6 What instruction and other assistance are provided to students in the libraries by librarians in (1) locating materials, (2) using card catalogs and other aids, (3) operation of audio-visual equipment, etc.?

3.7 To what extent do students seek library resources over and beyond classroom assignments?

4. What library resources are actually sought by students? How well do students use existing library resources?

4.1 What are the range and depth of resource materials sought by students? To what extent do they seek (1) book and non-book printed materials, (2) audio-visual materials, (3) realia, (4) interrelated resources (e.g., printed plays and related recordings, etc.)?

4.2 How successful or unsuccessful are students in locating and using materials which they seek? How accessible are these materials? Are interrelated resources readily accessible?

4.3 Why do students seek particular materials? assigned by teachers? recommended by others? (librarians, parents, fellow students, etc.) called for by course outlines? listed in recommended reading lists? other reasons?

4.4 To what extent do students make no effort to obtain library materials? For what reasons?

4.5 Where do students seek and obtain library materials (school libraries, public libraries, other libraries, purchase of books, other sources)?

-- To what extent have students developed their own inter-library use patterns?
-- What are the reasons given by students for preferences with respect to the libraries they use?
-- To what extent do students carry, and use, public library cards? other library system cards?
-- To what extent do students use The Free Library and for what kinds of materials?
-- To what extent do students use college and university, professional, and specialized libraries, and for what kinds of materials?
-- How do use patterns vary among different groups of students (honors students, average achievers, low achievers, etc.)?

4.6 To what extent (frequency of visits, hours of use, volume of materials used, etc.) are various library facilities used by students?

-- How often does the student visit the school library with his or her class? how often alone? At what times does he go to the school library? before class, during class, after class, during free periods, during holidays and vacations?

-- How often does he visit the public library? At what times does he usually go to the public library?
-- Does the class schedule provide the student with ample time to visit the school library during the school day?

4.7 What proportion of library usage by students is accounted for by study-related materials? by recreational and other interests?

4.8 How much time do students spend in seeking and using library materials for school study-related purposes?

4.9 To that extent do students use library services: card catalogs? readers guides? reference desk? etc.? To what extent do students seek and use instruction and guidance materials and services in libraries? To what extent does the student request help from his school librarian? To what extent are these requests satisfactorily met?

4.10 To what extent do students seek the same library materials at the same time?

4.11 To what extent do students use library facilities for study, for relaxation, for entertainment, etc.?

5. <u>How adequate are library resources in meeting student needs</u>?

5.1 How available and accessible to students are library resources?

-- Location, transportation problems,
-- Hours of service relative to student non-class time,
-- Use and borrowing privileges and restrictions.

5.2 How adequate are library collections (book and non-book printed materials, audio-visual materials, realia, etc.) relative to student needs?

5.3 What facilities and services are provided for students?

-- Reading rooms,
-- Audio-visual rooms and equipment,
-- Instruction and guidance materials,
-- Reference and readers advisory services.

5.4 What special activities (story telling, book talks, displays and exhibits, vacation reading programs, guest speakers, etc.) are provided for students?

5.5 To what extent do students have access to the resources of museums, planetariums, and other special facilities through their school libraries and the public library?

5.6 To what extent

-- are students not served by a school library?
-- are students not served by a public library?
-- are students not within walking distance of a public library?
-- do students not have access to audio-visual materials?

5.7 How well do existing student library resources compare with standards?

5.8 To what extent are public library services for children and young adults coordinated with school curriculum and library services?

5.9 To what extent are school library programs integrated with instructional programs?

6. What are the trends and future prospects in the demand for and the use of library resources?

A. With respect to student population and library use demand.

6.1 Estimated numbers of students, by categories; public and non-public; grade level and grade organization elementary and secondary; for selected future years.

B. With respect to library resources.

6.2 Estimated library resource requirements for selected future years to meet the enrollments estimated in A above.

-- reading materials;
-- audio-visual materials;
-- school libraries, IMC's;
-- personnel;
-- services;
-- expenditures.

C. With respect to developments in educational concepts, curricula, teaching methods and services, and their implications for library resource requirements.

6.3 Analysis of developments and implications for library resource requirements - consultant.

D. With respect to applicability of electronics and other modern technology to library services.

6.4 Review of potential applications to student requirements - consultant.

E. <u>With respect to joint operations of central library services and other cooperative ventures for making existing library resources more readily available to, and used by, students</u>.

6.5 Review of existing use of central and branch libraries.

6.6 Review of cooperative measures now in existence among all agencies included in the project.

6.7 Determination of ways in which existing resources can be made more accessible to, and used by students.

APPENDIX C

A. Schools and Libraries Included in Pretests of Student, Teacher, and Librarian Questionnaires

Schools and Area (1)	Student Questionnaire Grade	Student Questionnaire No. Students	Teacher Questionnaire	Librarian Questionnaire
PUBLIC				
Lea (Dist. 1)	6	29	Miss Heiman	Mrs. Grossman
G. Washington (Dist. 3)	4	21	Mrs. Robinson	Miss Davis
B. Franklin (Dist. 2)	10	32	Miss Hamilton	Miss Higgins
Roxborough (Dist. 6)	12	26	Mrs. Nehez	Miss Gehring
G. Washington (Dist. 8)	8	26	Miss Ortine	Mr. Dubester
TOTAL STUDENTS		134		
ARCHDIOCESAN				
St. Raymond (Dist. 6)	4	58	Miss Curtin	Sr. Mary Rosaria
St. Bonaventure (Dist. 5)	6	31	Miss Mulholland	Sr. Maria Teresa
W. Phila. Catholic Girls' High (Dist. 1)	10	48	Sr. Thomas Bernadette	Sr. Catherine Mary
Cardinal Dougherty (Dist. 7)	12	38	Sr. Elizabeth De Salles Mr. Rauscher	Father Schneider
TOTAL STUDENTS		175		
INDEPENDENT				
Springside School (Dist. 6)	10	20	Mrs. Michel	Mrs. Schlosser
TOTAL STUDENTS		329		

B. Branch Libraries Included in Pretests of Free Library Questionnaires

Branch Library	Librarian
Columbia Avenue (Dist. 2)	Mr. Shelkrot
Fox Chase (Dist. 8)	Mr. Cooley
South Philadelphia (Dist. 2)	Miss Dragonetti

C. Libraries Included in Pretests of Library Use Checklists (2)

School	Librarian	Number of Library Checklists Completed
Harding (Dist. 7)	Mrs. Goodman	403
Taggart (Dist. 3)	Mrs. Berman	209
W. Phila. Catholic Girls' High (Dist. 1)	Sr. Catherine Mary	249
Public Library		
West Oak Lane Branch	Miss Robinson	480
TOTAL CHECKLISTS		1,341

(1) Area is identified by public school district. The district number is shown in parentheses following the school name.

(2) The checklists were pretested in each of the three school libraries during one school day, and in the public library from 1 to 9 P.M., Monday, May 26th.

APPENDIX D

Pretest Evaluation Forms

EVALUATION QUESTIONNAIRE

Student Name_____ Grade_____

School Name _____

Instructions: Answer each of the questions below by DRAWING A CIRCLE around the letter of your answer.

1. What is the single most important reason why you didn't go to your school library more often this year?

   (a) Because I have used the school library as much as I wanted to

   (b) The library is not open at a time when I can go

   (c) My friends don't go to the library, so I don't go

   (d) I don't like the school and the library is like school

   (e) There are too many rules that I don't like

   (f) The library doesn't have the materials I want

   (g) I had to work at my job in my free time

   (h) The library is too crowded

   (i) Other (Print your reason on the back of this sheet)

2. What do you like best about your school library?

   (a) The librarians are nice

   (b) It has a lot of good books

   (c) It has a lot of good filmstrips and records

   (d) It is a good place to visit with my friends

   (e) It is a good place to study or read

   (f) I don't like anything about the school library

   (g) Other (Print your answer on the back of this sheet)

3. What do you like best about your public library?

(a) The librarians are nice

(b) It has a lot of good books

(c) It has a lot of good filmstrips and records

(d) It is a good place to visit with my friends

(e) It is a good place to study or read

(f) I don't like anything about the public library

(g) Other (Print your answer on the back of this sheet)

4. Which library do you use the most when you want to study?

(a) School library

(b) Public library

(c) College or university library

(d) None (I never study in any library)

(e) Other

5. I learned to use the library from:

(a) My teachers

(b) The librarian at my school

(c) Both my teachers and the librarian at my school

(d) I never learned to use the library from my teachers or the librarian at my school

6. What do each of the following words or phrases mean?

(a) library materials _____

(b) recordings _____

(c) filmstrips _____

(d) public library _____

7. What is the name of your school librarian? _____

Pretest Evaluation

STUDENT QUESTIONNAIRE EVALUATION FORM

School _____ Grade _____ Date _____

Names of students interviewed:

A _____

B _____

C _____

D _____

E _____

Interviewer _____

_____

1. Were you able to answer all the questions?

	YES	NO
A	_____	_____
B	_____	_____
C	_____	_____
D	_____	_____
E	_____	_____

2. If not, why not?

A _____

B _____

C _____

D _____

E _____

3. Were any of the questions too hard for you?

	YES	NO
A	_____	_____
B	_____	_____
C	_____	_____
D	_____	_____
E	_____	_____

4. If "yes", which ones?

A _____

B _____

C _____

D _____

E _____

5. Did you understand the teacher's instructions for using the answer sheet?

	YES	NO
A	_____	_____
B	_____	_____
C	_____	_____
D	_____	_____
E	_____	_____

6. Was the answer sheet hard to use?

	YES	NO
A	_____	_____
B	_____	_____
C	_____	_____
D	_____	_____
E	_____	_____

7. What do the following words mean:

- library materials

A _____

B _____

C _____

D _____

E _____

-recordings

A_____

B_____

C_____

D_____

E_____

-filmstrips

A_____

B_____

C_____

D_____

E_____

-public library

A_____

B_____

C_____

D_____

E_____

8. What is the name of your school librarian?

A_____

B_____

C_____

D_____

E_____

Name_____ School_____

Date_____

QUESTIONNAIRE EVALUATION FORM - TEACHERS AND LIBRARIANS

1. Did you find any of the questions on the questionnaire confusing?

   Yes _____

   No _____

   If yes, please list the number of the question and indicate the source of confusion.

Question Number	Source of confusion
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2. Did you have great difficulty in answering any of the questions because of insufficient information at your disposal?

   Yes _____

   No _____

   If yes, list the numbers of these questions.

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

3. Did any of the questions asked of you suggest other related questions which were not included in the questionnaire?

Yes _____

No _____

If you answer is yes, identify the number of the questions which suggested new questions and write the new questions below:

Question Number	Questions suggested
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

4. Have you had any major problems with library usage or administration which were not covered in this questionnaire?

Yes _____

No _____

If yes, what?_____

_____

_____

_____

5. Did you easily understand the use of the digitek answer sheet?

Yes _____

No _____

If no, what did you find difficult in the use of the answer sheet?

_____

_____

_____

6. How much time did you take to answer all of the questions?

_____
(Minutes)

APPENDIX E

Philadelphia Student Library Resource Requirements Project

PHASE I PRETESTS

SELECTED SUMMARY EVALUATIONS

OF

PRETESTS OF SIX DIFFERENT DATA-GATHERING INSTRUMENTS

DURING MAY, 1969

Table 1

STUDENT ANSWER SHEET RETURNS

School	Grade	No. Students Questioned	No. Answer Sheets Returned	% Returns
1	4th	21	21	100.0
2	4th	58	58	100.0
3	6th	31	31	100.0
4	6th	29	29	100.0
5	8th	27	27	100.0
6	10th	48	48	100.0
7	10th	32	32	100.0
8	10th	20	20	100.0
9	12th	39	39	100.0
10	12th	26	26	100.0
	Total	331	331	100.0

Table 2

PERCENT OF ANSWER SHEETS COMPLETED

		Answer Sheets		
School	Grade	No. Returned	No. Complete	% Complete
1	4th	21	4	19.0
2	4th	58	33	56.9
3	6th	31	16	51.6
4	6th	29	26	89.7
5	8th	27	21	77.8
6	10th	48	47	97.9
7	10th	32	10	31.2
8	10th	20	20	100.0
9	12th	39	37	94.9
10	12th	26	18	69.2
		331	232	70.1

Table 3

EXTENT TO WHICH STUDENTS WERE ABLE TO COMPLETE THE QUESTIONNAIRE

Number of Questions Completed	Percent of Students in Pretest				
	4th Grade	6th Grade	8th Grade	10th Grade	12th Grade
All Questions*	46.8	70.0	77.8	77.0	84.6
At least 60	64.6	85.0	96.3	9[illegible].0	96.9
At least 40	83.5	98.3	96.3	96.0	100.0
At least 20	97.5	100.0	100.0	99.0	100.0

* The questionnaire administered to 4th and 6th grade students contained 74 questions; the one administered to 8th, 10th, and 12th grade students contained 80 questions.

Table 4

NUMBER OF STUDENTS WHO WROTE THEIR OWN ANSWERS ON THE BACK OF THE DIGITEK ANSWER SHEETS

BY QUESTION

Question Number	Number of Students	Question Number	Number of Students
3	76	26	109
4	69	27	30
5	38	28	34
6	38	29	149
7	90	40	43
18	33	42	65
20	64	45,46,47	8
25	126		

BY GRADE

Grade	Number of Written Entries	Average Number Per Student (*)
4	171	2+
6	178	3
8	97	3+
10	315	3
12	211	3+
	972	3

(*) Number of entries divided by number of students in pretest.

Table 5

INCONSISTENT RESPONSES BY STUDENTS

Test Questions	Number of Students Whose Responses Were Not Consistent — SCHOOL CODE 1	2	3	4	5	6	7	8	9	10	All Schools
1. Seven questions (#12-18) concerning non-use of school library	1	0	2	3	0	3	4	0	0	1	14
2. Two questions (#19 and 22) concerning time spent in the school library	2	1	1	2	1	0	2	0	0	1	10
3. Two questions (#48 and 64) concerning use of library for study purposes	0	2	1	0	0	1	1	0	1	2	8
4. Two questions #65 and 66) concerning attitude towards libraries	0	6	1	0	0	0	3	0	0	0	10
Totals	3	9	5	5	1	4	10	0	1	4	42

Summary by Grade Test Questions	Grade 4	Grade 6	Grade 8	Grade 10	Grade 12
1	1	3	0	7	3
2	3	2	0	4	1
3	2	3	0	2	1
4	6	1	0	3	0
	12	9	0	16	5

Table 6

ERRORS ON STUDENT ANSWER SHEETS (*)

Grade	Number of Errors	% of Total Errors
4 and 6	74	63.8
8	1	0.9
10	30	25.8
12	11	9.5
Total	116	100.0

Questionnaire Part		
I (Questions 1-22)	22	19.0
II (Questions 23-44)	41	35.3
III (Questions 45-57)	6	5.2
IV (Questions 58-80)	47	40.5
Total	116	100.0

(*) The errors consisted of marking of a letter on the digitek form which was not contained in the answer choices on the questionnaire.

Table 7

TEACHER QUESTIONNAIRE

	GRADE					All Grades
	4	6	8	10	12	
Number of teachers	2	2	1	4	3	12
Number of returns	2	2	1	4	3	12
Percent returns	100.0	100.0	100.0	100.0	100.0	100.0
Number of completed answer sheets						3
Percent complete						25.0
Number of incompleted answer sheets						9
All but one question answered						5
All but two to four questions answered						4

Time required to complete the questionnaire:

15 minutes - 2 teachers

20-30 minutes - 4 teachers

35-45 minutes - 5 teachers

50 minutes - 1 teacher

Number who found some questions confusing - 6

Major sources of confusion:

- Definitions of terms (e.g., "often", "sometimes")
- Answer choices not discrete

Table 8

SCHOOL AND PUBLIC LIBRARY QUESTIONNAIRES

Number of library personnel in pretest -	10 - school libraries
	3 - Free Library branch libraries
	13
Number of returns	13
Percent returns	100.0
Number of completed answer sheets	8
Percent complete	61.6

Time required to complete the questionnaire:

30 minutes	- 4 librarians
30-60 minutes	- 4 librarians
60-90 minutes	- 1 librarian
90-120 minutes	- 4 librarians

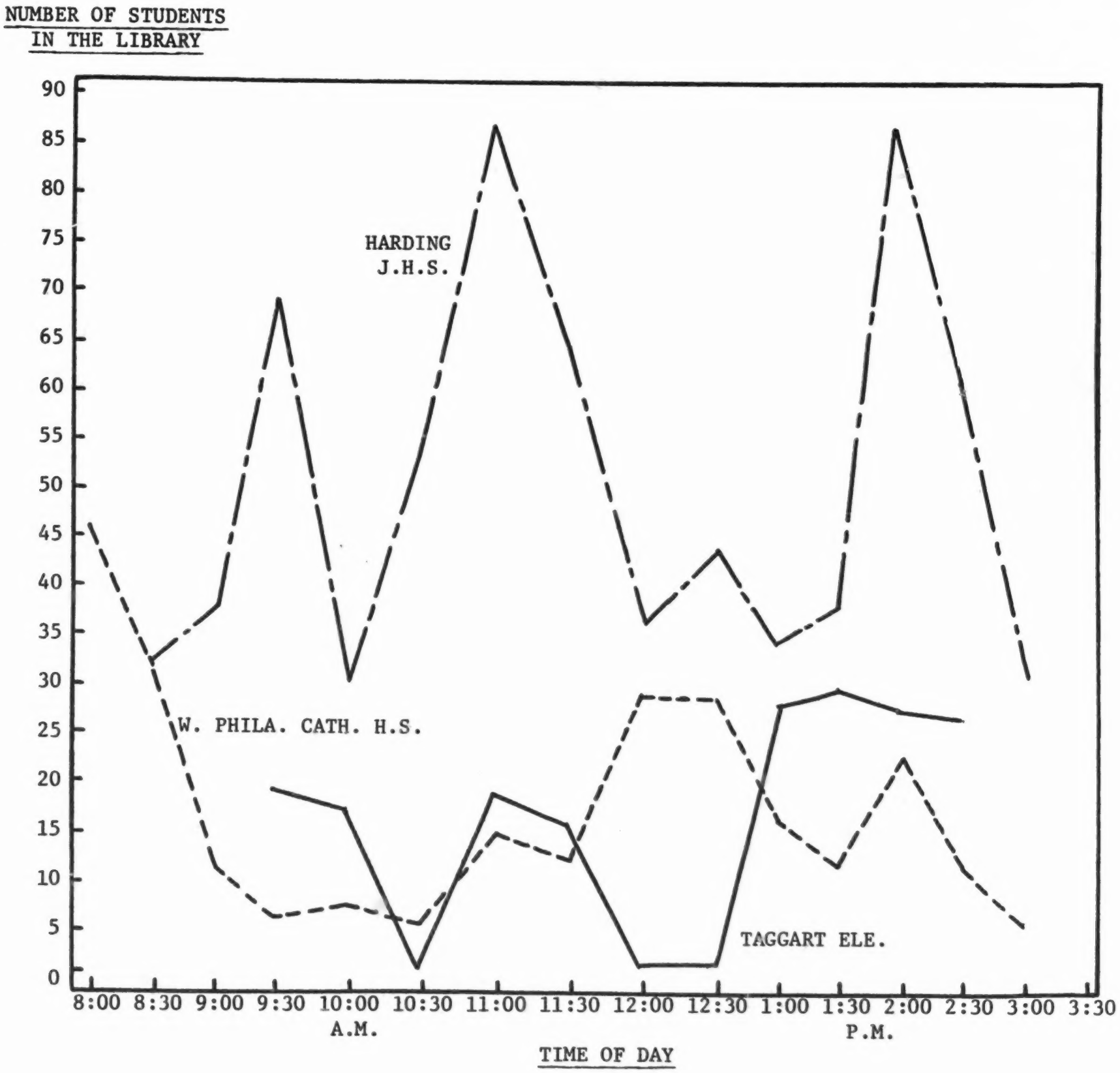
Number who found some questions confusing - 8

Major sources of confusion:

- Definitions of terms (e.g., "often", "sometimes")
- Answer choices not discrete

FIGURE 1

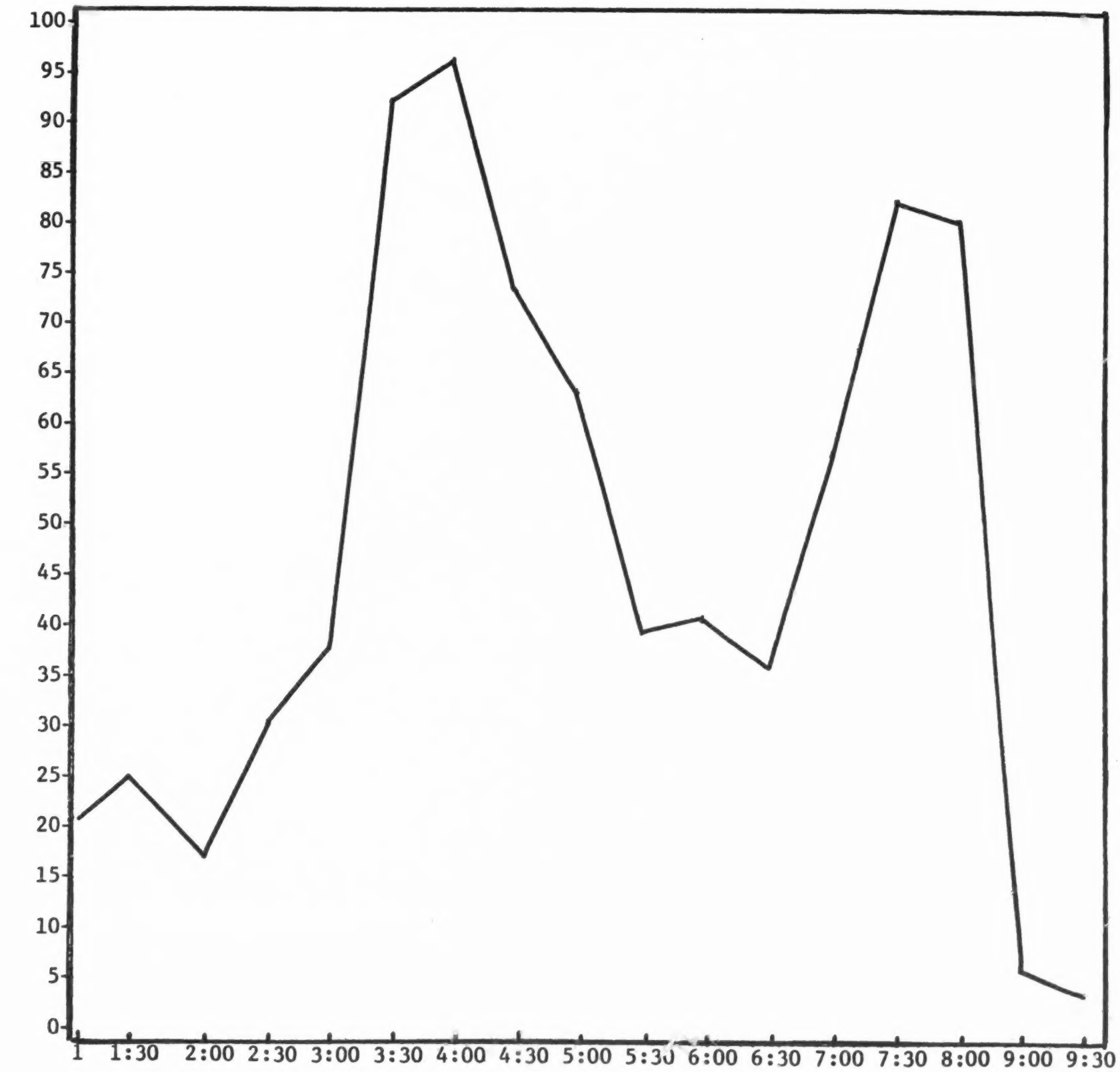
DISTRIBUTION OF STUDENT DEMAND FOR LIBRARY SERVICES, BY TIME OF DAY, IN THREE SCHOOL LIBRARIES (*)



(*) Surveys conducted on May 20 (TAGGART SCHOOL), May 21 (HARDING SCHOOL), and May 23 (W. PHILA. CATHOLIC GIRLS' HIGH SCHOOL), from opening to closing time.

FIGURE 2

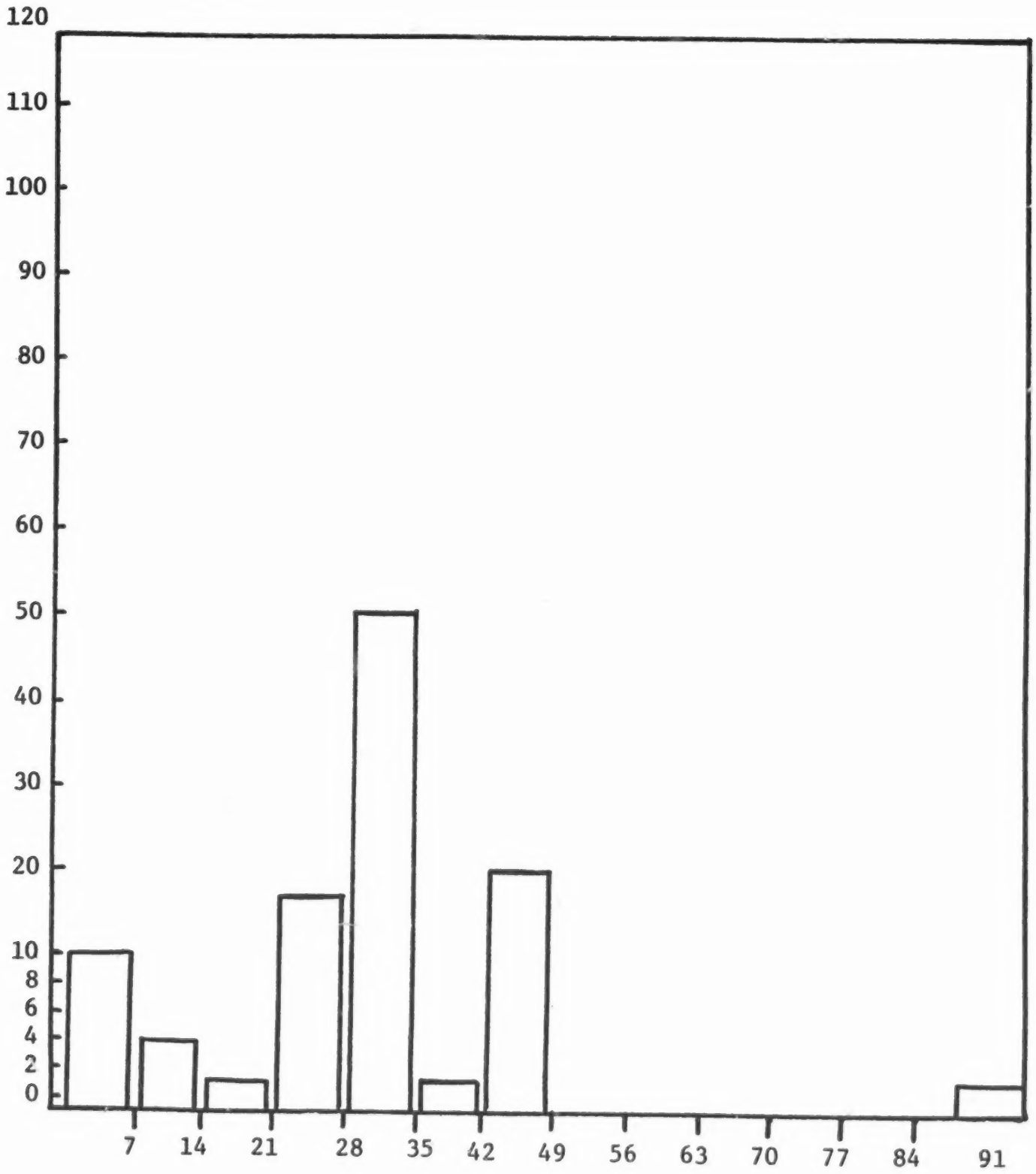
DISTRIBUTION OF PATRON DEMAND FOR LIBRARY SERVICES, BY TIME OF DAY, IN THE WEST OAK LANE BRANCH LIBRARY (*)



(*) Survey conducted on May 26, 1969 from 1 to 9 P.M.

FIGURE 3

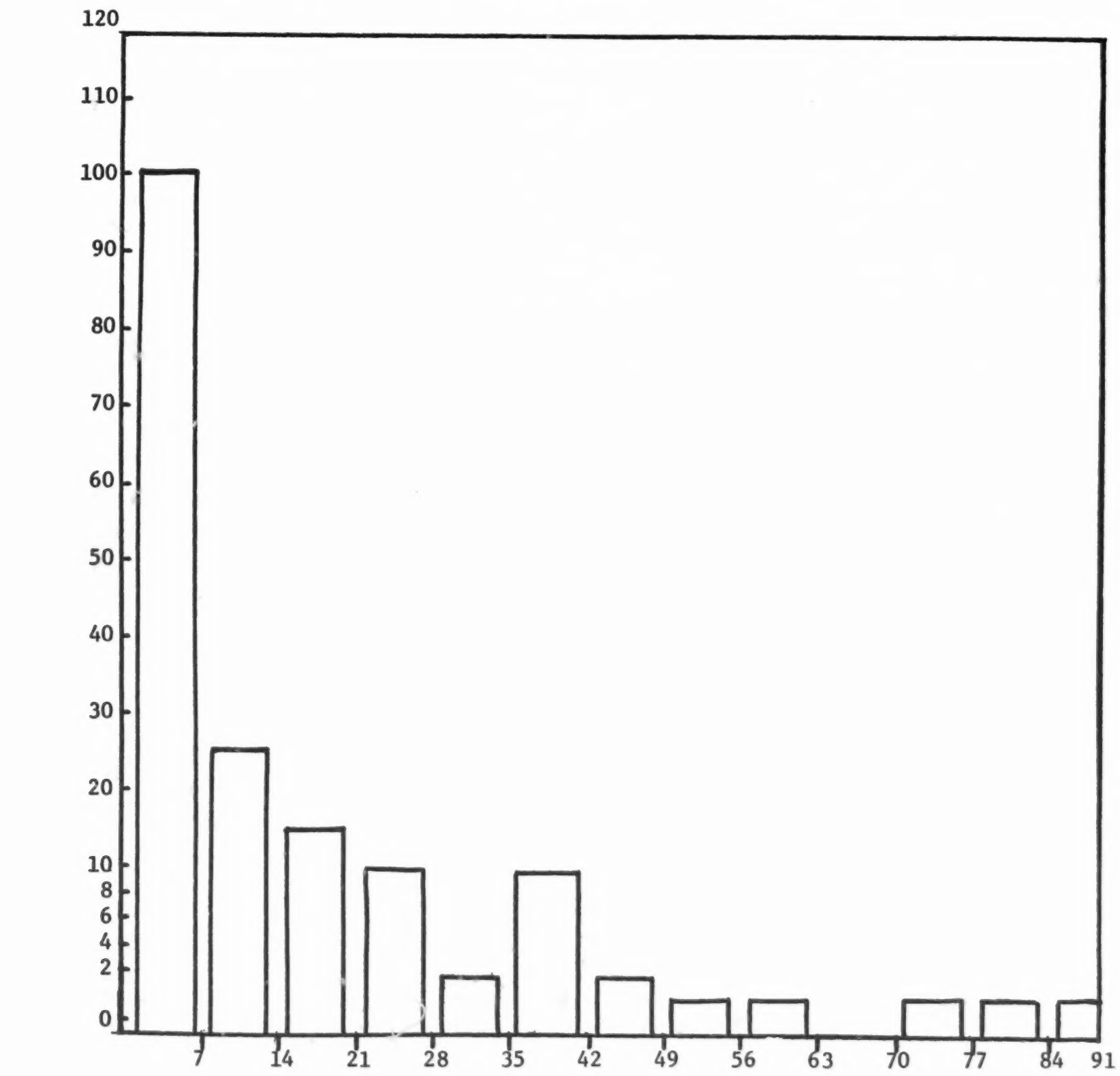
DEMAND ON LIBRARY RESOURCES AS MEASURED BY NUMBER OF STUDENTS WHO WERE IN THE LIBRARY FOR VARYING PERIODS OF TIME - TAGGART ELEMENTARY SCHOOL (*)



(*) Survey conducted on May 20, 1969 between 8:45 a.m. and 4 p.m.

FIGURE 4

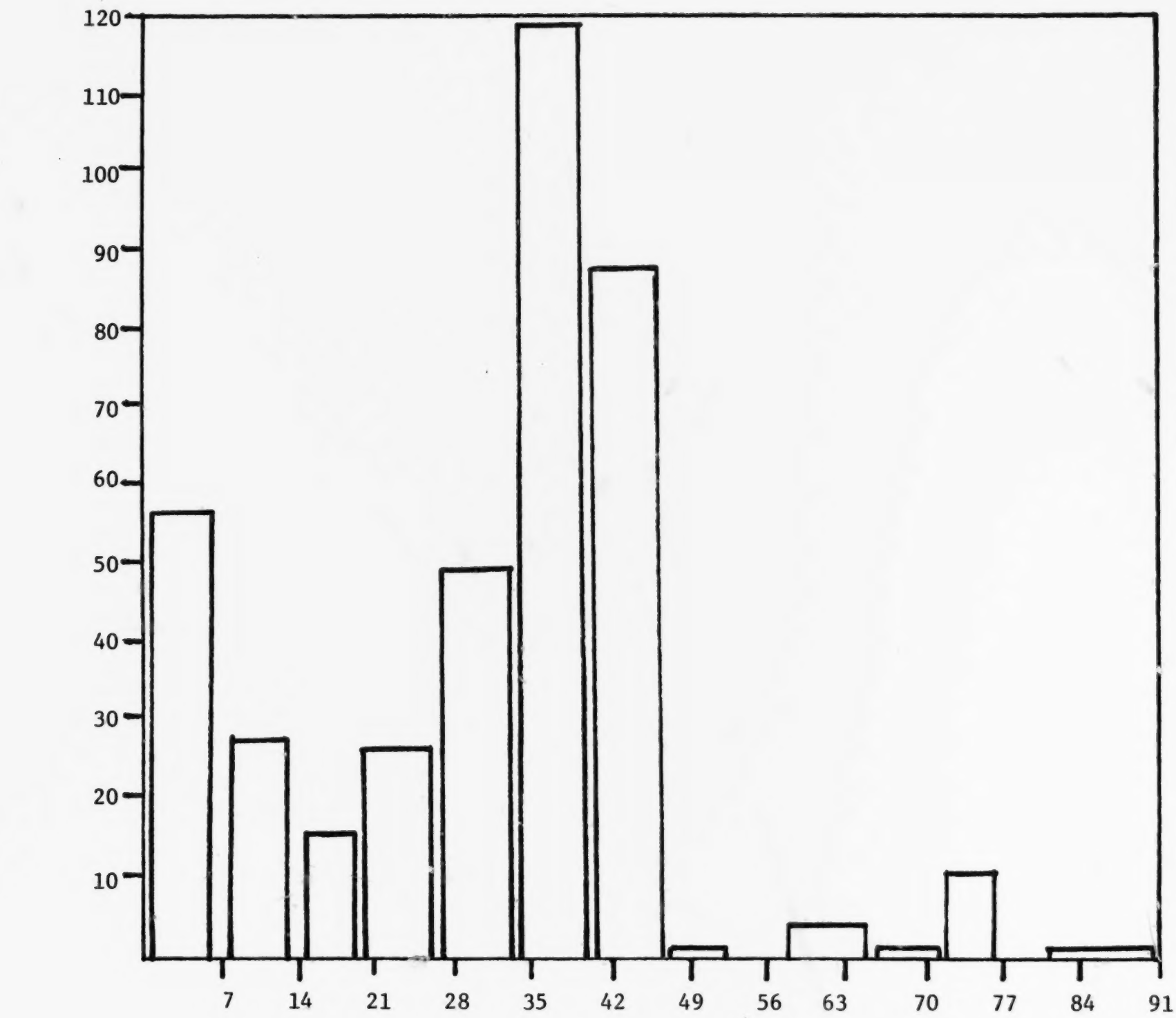
DEMAND ON LIBRARY RESOURCES AS MEASURED BY NUMBER OF STUDENTS WHO WERE IN THE LIBRARY FOR VARYING PERIODS OF TIME - WEST PHILADELPHIA CATHOLIC GIRLS' HIGH SCHOOL (*)



(*) Survey conducted on May 23, 1969, between 8 a.m. and 4:30 p.m.

FIGURE 5

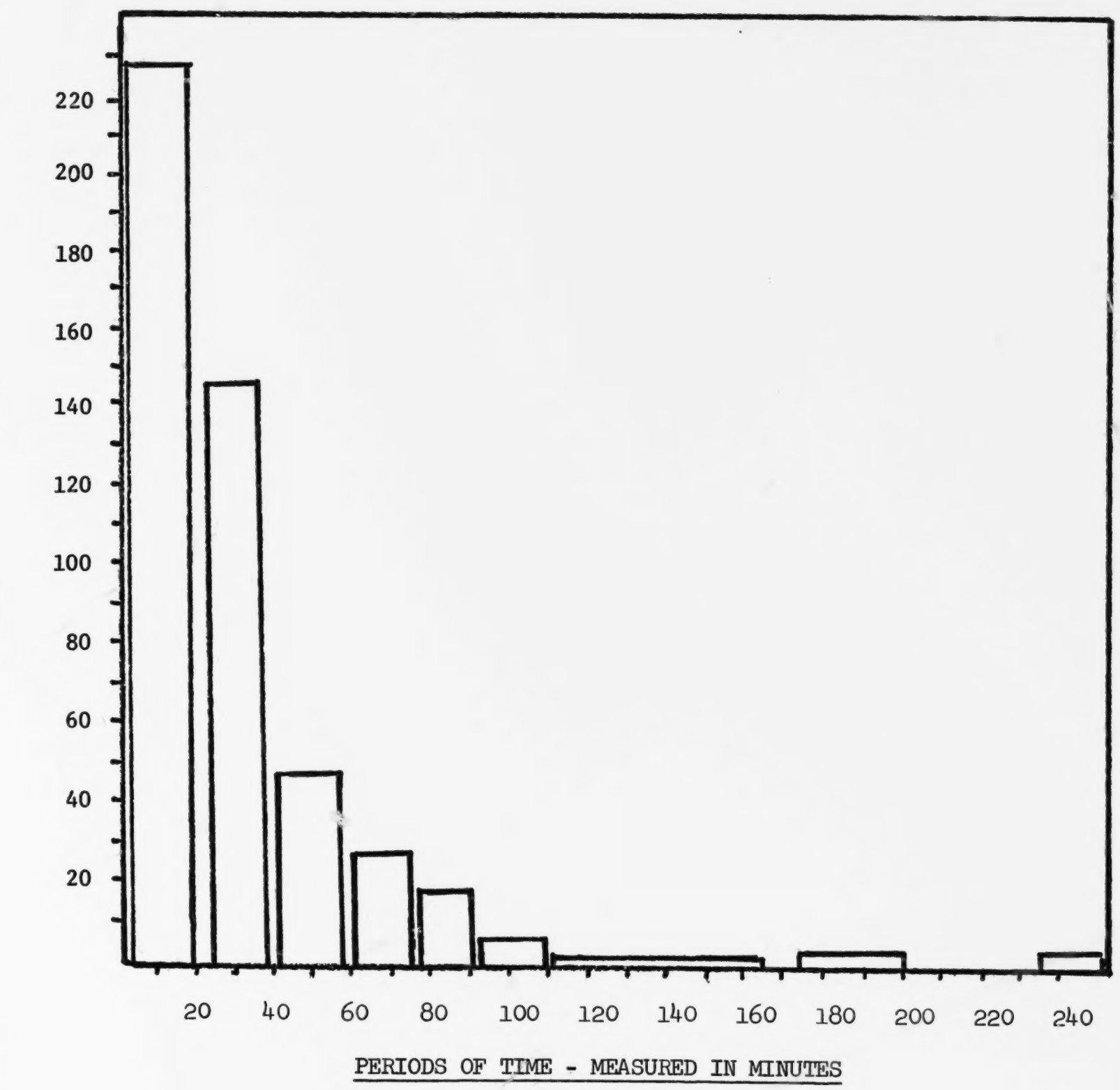
DEMAND ON LIBRARY RESOURCES AS MEASURED BY NUMBER OF STUDENTS WHO WERE IN THE LIBRARY FOR VARYING PERIODS OF TIME - HARDING JUNIOR HIGH (*)



(*) Survey conducted on May 21, 1969, between 8:30 a.m. and 4:30 p.m.

FIGURE 6

DEMAND ON LIBRARY RESOURCES AS MEASURED BY NUMBER OF STUDENTS WHO WERE IN THE LIBRARY FOR VARYING PERIODS OF TIME - WEST OAK LANE PUBLIC LIBRARY (*)



(*) Survey conducted on May 26, 1969, between 1:00 p.m. and 9:00 p.m.

APPENDIX F

Estimate of Future School Enrollments (Kindergarten through 12th Grade) City of Philadelphia, 1970 to 1990 (*)

Introduction

This study is part of work being done by the Student Library Resource Requirements Project, which is sponsored jointly by public, Archdiocesan, independent and private schools of Philadelphia and the Free Library of Philadelphia. Its purpose is to estimate the numbers of students by grade group in the public and nonpublic schools to facilitate estimates of future student library resource requirements.

In 1968, there were about 439,000 pupils in grades Kindergarten through 12. About 63 percent of these or 276,000 attended public school; about 33 percent (147,000) attended Archdiocesan schools; and about 4 percent (16,000) attended independent and private schools including nonparochial Catholic schools. Data on recent public and private school enrollments have been provided by the Board of Education both from its enrollment records and from its annual school census material (1967). Data on Catholic school enrollments have been provided by the Superintendent of Schools of the Archdiocese of Philadelphia, whose office also indicated that, within the City, there are no plans for major expansion of Archdiocesan schools at this time. The cooperation of William Herron, on the staff of the Philadelphia School District, and Father Paul F. Curran of the Archdiocese of Philadelphia is gratefully acknowledged.

Data on residential construction, conversion and demolition activity within the City were provided by the City's Department of Licenses and Inspection, with a caveat to the effect that it would be rash to claim precise accuracy as regards the number of housing units now standing in the City at this time. Such figures are given in this report; however, they are given as approximations, as are all the other figures presented here. The significant fact is that there is very little room left in the City for substantial increase of the housing supply save for large net-increases in housing density.

Staff members of the City Planning Commission provided an appraisal of the housing potential of major open tracts of land in the City and also data on the growth of the City, which afforded an opportunity to explore certain historical relationships between population and housing growth since 1930 in 10 of the City's 12 planning analysis areas. The cooperation of Alfred Toizer and others on the Planning Commission staff and George Goettelman, of the Department of Licenses and Inspection is also gratefully acknowledged. Other data have been drawn from the U. S. Censuses of housing and population.

(*) Prepared by Arnold R. Post, Government Studies Associate, Fels Institute of Local and State Government, University of Pennsylvania, who is the Research Center's Consultant on Demography.

In addition, brief conversations with personnel from the Pennsylvania Economy League, the Housing Association of Delaware Valley and Research for Better Schools, Inc., have been held.

There are certain major trends occurring in the development of Philadelphia's population; and this estimate has been developed to relate the growth and distribution of the City's school enrollments to a reasonable extension of these trends in housing development, racial migration, household formation, and vital events. The findings represent a feasible outcome of prospective patterns of development. There is, however, adequate room for technically valid honest differences of opinion. While several people have contributed to the author's understanding of recent developments, they are in no way responsible for his findings.

The trends affecting the growth of the City's population are quite distinct in both net migratory effect and birth rate as defined for color groupings of its people. Reference has to be made to the diversity that actually exists. Feelings run deep in matters of race and color; and an issue has been made of the obvious inadequacy of the term "nonwhite" to refer to personal characteristics. Since Afro-Americans in Philadelphia constitute at least 95 percent of the group referred to as "nonwhite" in the census returns, reference to census data concerning this group is by the phrase "black and other" in the report. Following the definition given by the Census Bureau, all others, i.e., those not nonwhite, are referred to as "white."

As indicated on the Summary Table next page, total school enrollments of City residents are expected to peak in 1970 at 447,000 and then remain nearly stable, declining only to 441,000 by 1990. During this period, it is expected that the public share of total enrollments will increase by about 8 percent resulting in a gain in the public system and a loss in the nonpublic systems.

Summary Table
APRIL SCHOOL ENROLLMENTS (1,000's)
City of Philadelphia

A. Public

	K	1-3	4-6	7-9	10-12	K-6	7-12	K-12
1965	19.4	71.0	58.7	59.9	51.4	149.1	111.3	260.4
1970	28.0	71.9	70.2	61.8	56.2	170.1	118.0	288.1
1980	28.9	72.8	72.1	71.5	66.0	173.8	137.5	311.3
1990	30.6	79.4	78.1	72.1	60.4	188.1	132.5	320.6

B. Non-Public

	K	1-3	4-6	7-9	10-12	K-6	7-12	K-12
1965	4.0	50.8	45.1	38.5	33.3	99.9	71.7	171.6
1970	3.5	43.0	39.9	38.9	33.3	86.4	72.2	158.6
1980	2.2	33.6	32.7	33.9	27.6	68.5	61.5	130.0
1990	2.0	34.3	32.4	30.2	21.1	68.7	51.3	120.0

C. All Systems

	K	1-3	4-6	7-9	10-12	K-6	7-12	K-12
1965	23.4	121.8	103.8	98.4	84.6	249.0	183.0	432.0
1970	31.5	114.9	110.1	100.7	89.5	256.5	190.2	446.7
1980	31.1	106.4	104.8	105.4	93.6	242.3	199.0	441.3
1990	32.6	113.7	110.5	102.3	81.5	256.8	183.8	440.6

The Shape of Things

It is expected that the major trends of population development in Philadelphia will continue as in the recent past, being modified chiefly by a binding constraint on the growth of the City's housing supply. Allowance has been made for an addition of 20,000 units between now and 1980 with the total holding constant after that time at 685,000 units, with 96 percent or 660,000 occupied. The population will, of course, continue to generate prospective household heads and their movement to other areas to establish their own households will lead to a continuing decline in the City's average household size throughout the period. In 1960, the City's population was about 2 million, down from 1950's figure of 2.072 million. By 1990, a population of 1.8 million seems likely in the City proper although continued growth is expected in the metropolitan area as a whole.

Population growth trends are never all of a piece. The overall effect is achieved as a net effect of quite diverse patterns among the various age groups and the cross currents of population movement. There are also distinctly different age-group patterns as between the major races. Household formation is apt to occur later in the life-cycle of the black population than in that of the white population, which difference is probably a reflection of economic differences. Whatever the case may be, the potential for growth of the white population is historically much more closely associated to the formation of new households, while more of the growth of the black population occurs in established households.

It happens that differences in racial patterns of preference or activity are of considerable importance as regards the distribution of pupils in the public and nonpublic school systems. About 10 percent of the City's students of black and other races attend nonpublic schools; while about 60 percent of the City's white students attend these schools.

As the population continues its decline in total number to 1990, it will tend to have a higher proportion under 20 years of age and persons of black and other races will become the majority. Total City school enrollments are expected to remain almost constant, dropping somewhat after 1970 and then returning almost to present levels after 1985. On the assumption that the racial trends will be reflected proportionately in the various school systems, the effect of white departures and new arrivals of black and others will be to raise the public schools' share of total enrollment from 63 percent (1968) to 70 percent (1980) of the total Kindergarten through 12th grade, that is, from 276,000 pupils in 1968 to about 311,000 pupils in 1980, with an associated loss of enrollments in the nonpublic schools. Such trends are presaged in the enrollment statistics since 1965. (See Table 4.) Concerning nonpublic school enrollments, this same assumption leads to an expectation that, nonpublic enrollments of black and other races will increase from about 10 percent to about 17 percent of total nonpublic enrollments, as their population of school age, increases by about 35 percent.

The above estimate for 1980 of 311,000 pupils kindergarten through 12th grade in the public schools of the City compares with other estimates ranging between 280,000 and 330,000. The higher figure was derived by the School

District's Office of Research and Evaluation in 1967 and was based on birth rates higher than now seem reasonable. The lower figure published earlier this year represents an adjustment to recent low birth rates and represents no gain from the November 1968 enrollment of 283,000. While it seems very reasonable to expect no gain in the City's total enrollment (public and private) between now and 1990, a continuing rise in the public share is consistent with the patterns of racial changes in the City assuming the conditional distributions of school system attendance by racial group to be inherently stable.

Future birth trends will affect future enrollment trends well before 1990. Birth trends for the City and for the Nation as a whole have been downward for several years. The steady downward trend in the City since 1961 is seen partly as a reflection of declining total population, partly as a function of the population's changing age distribution, and partly, perhaps, as a reflection of changing fashions and rising costs, among other things. However, changes in age distribution, which will, in most areas, increase the population of child-bearing age, are inevitable. I would expect that these changes will have some effect on the fashions of days to come, as similar changes may have had some effect in the period since 1920.

The white population under five amounted to 9 percent of the total white population in 1960. This proportion may decline to 7.5 percent by 1970. Since even the 9 percent figure is relatively low, a return to 9 percent does not seem unrealistic by 1980. The comparable percentages for the populations of black and other races are 13 percent for 1960, stabilizing at 12 percent in later years. (These percentages have been derived from the expected age distributions and thus include the effects of migration.)

By 1980, the constraint on the growth of the housing supply and the reduced size of the white population will operate so that not enough housing units will be released in the traditional fashion to accommodate the natural increase in housing need of the black population. It has been assumed that by the end of the forecast period the population of black and other races will have achieved the wealth and credit required to establish households earlier in its life cycle and that it will have greater freedom to establish households beyond the confines of the City. Thus, in the last decade, it has been assumed that both color groups will, on balance, participate in the out-migratory movement from the City.

Actually, some of the population of black and other races of 1960 appears to have departed from the City, presumably bound for the suburbs. The numbers are too small to allow great confidence in this assertion; but since there was a slight shortage of primary enrollments among these races relative to what one might have expected from the 1960 census and estimated household trends, it is perhaps well to indicate here that the figures given for the development of the black and white populations in the City are derived in terms of net changes. Actually, persons of all races are moving in both directions across the City boundary.

Trends of the recent past and future estimates

Table 1 gives data from the censuses of 1940 through 1960, along with estimates for future years. It is worth noting that a 15 percent gain in households between 1940 and 1950 was associated with only a 7 percent gain in population and that the 5 percent gain in households during the 1950's was associated with a 3 percent loss of population. In these periods, population gains were 8 percent less than household gains. The estimate of net household gain for this decade has been derived from extension of the trends of reported school enrollments; and the indicated reduction in the rate of household gain is the main basis for assuming an acceleration in population loss. During the 1970's, the stability of the population total relates to a relatively large household gain anticipated for the population of black and other races. The relatively small loss in population (5 percent) associated with no gain in households 1980-90 combines the effects of increased black occupancy with an assumption that the white population at that time will tend to be less mobile than the City's white population at present owing to a relative shortage of middle age population. (See table 3, and commentary.)

The percentage of total population of black and other races is estimated to be increasing, at present, by about one percentage point a year; and this rate matches the expectation for the coming decade. After 1980, with this population also, on net, migrating out of the City, the growth in percentage share slows down to about $\frac{1}{2}$ percentage point a year.

The age distributions of the school and pre-school populations have been derived with respect to the anticipated use of the housing supply. It should be noted, however, that as of 1967, the City's resident live births totaled 36,112, with 20,998 white, and 15,114 of black and other races according to the City Department of Public Health. If these figures are taken as averages for the period 1965-70, they could be interpreted to yield estimates of the preschool populations (0-4) of about 105,000 white and 76,000 black and other as of 1970. These estimates would be comparable to the 1960 report of 129,000 and 71,000 respectively.

The reason for not using reports of births directly to estimate the size of the preschool population is that births usually mark a change in household size and such changes are a major cause of population mobility. (See the volume in the ACTION Housing Series, Housing Choices and Housing Constraints, Part II, "Consumer Strategies.") In general, it is reasonable to expect birth reports to overstate the number of preschoolers remaining in a population characterized by out-migration and to understate the number of preschoolers in a population augmented by in-migration. Hence, the estimates of preschool population in 1970 differ from the figures that one might derive directly from reports of the Department of Health. The 1970 estimates of preschool population are: 91,000 white and 88,000 black and other.

That the City's white population is currently characterized by out-migration may be seen from a comparison of school enrollment reports with the 1960 age distributions. The potential or natural increase in school enrollments may be crudely estimated by subtracting the high school age group (15-19) from the preschool population (0-4). There was a net loss of about 8,000

Table 1

PHILADELPHIA CITY TOTALS
(Population and Housing Figure in 1,000's)

HOUSING TRENDS

	1940		1950		1960		1970		1980		1990
Households											
White	441		485		467		430		395		365
Black and Other	66		100		149		205		265		295
TOTAL	507		585		616		635		660		660
% Gain		15%		5%		3%		4%		0%	
Dwellings	533		599		649		665		685		685
% Occupied	95%		98%		95%		95%		96%		96%

POPULATION TRENDS

	1940		1950		1960		1970		1980		1990
White	1,678.5		1,692.6		1,467.5		1,189		998		830
Black and Other	252.8		379.0		535.0		705		891		976
TOTAL	1,931.3		2,071.6		2,002.5		1,894		1,889		1,806
% Gain		7%		-3%		-5%		-0%		-4%	
% White	87%		82%		73%		63%		53%		47%

SCHOOL POPULATION BY AGE GROUP

	1960		1970		1980		1990	
	White	Black and Other	White	Black and Other	White	Black and Other	White	Black and Other
0-4	129.5	71.4	91	88	88	109	75	119
5-9	113.5	60.0	102	82	73	92	73	109
10-14	109.2	48.1	98	73	75	98	74	105
15-19	99.5	35.5	85	71	86	84	58	82
0-19	451.7	215.0	376	314	322	383	280	415
All races 0-19	666.7		690		705		695	
% of total population	33%		36%		37%		38%	

Source: 1940, 1950, 1960, U. S. Census of Population and Housing. Figures for subsequent years are estimates.

white enrollments between 1960 and 1968 in the City in the face of a natural, potential gain of about 35,000. A similar gain of about 35,000 was in store for black and other enrollments; however, the actual gain was in the neighborhood of 50,000. The enrollment figures are given in table 2.

Table 3 gives an indication of how the impact of gains and losses in households may affect the development of population age distributions. The loss of white households during the 1950's had its major impact on the population of middle age. The loss of 18,000 households was associated with a decline of 230,000 persons between the ages of 20 and 64; there was a smaller impact on the population under 20, while the population 65 and over increased slightly. On the other hand, there was a gain of nearly 50,000 black and other households. This gain had its major impact on the growth of the population under 20, being associated with a gain of about 89,000 persons. More moderate gains occurred in the older age groups.

Table 4 translates the trends of racial enrollment to trends of public-nonpublic enrollment. The estimate is based on the assumption that, if black and other enrollments in the City are expected to increase by, say, 10 percent in a certain grade group, enrollments of these youngsters in this grade group will increase by 10 percent in any school system within the City. This assumption leads to an estimate of declining enrollments in the nonpublic schools since the white population is declining and most white enrollments (60%) are in the nonpublic schools. This assumption does not preclude the possible growth of nonpublic enrollments in specific areas of the City, but it does imply that such growth would be more than balanced by losses elsewhere in the City.

It was originally intended to present estimates of enrollment by single grade; however, for a variety of reasons this is not realistically feasible. For one thing, racial information is not available in this fine a degree of detail for recent enrollments. A reasonable approximation can be had on the assumption that the individual grades within each grade group constitute about 1/3 of the appropriate grade group totals.

Table 2

City of Philadelphia
APRIL SCHOOL ENROLLMENTS, BY RACE
1960 to 1990, in thousands

WHITE

Grades	1960[1]	1968[2]	1970[3]	1975	1980	1985	1990
1-3		69.2	61.5	47.0	44.9	44.7	44.8
4-6		64.6	57.5	49.9	44.2	43.0	42.7
7-9		55.8	57.4	55.5	47.2	43.0	41.0
10-12		54.4	57.3	53.3	47.6	39.5	35.5
1-8	181,102						
9-12	75,271						
1-12	256,373	244.0	233.7	205.7	183.9	170.2	164.0

BLACK AND OTHER

Grades	1960	1968	1970	1975	1980	1985	1990
1-3		48.1	53.4	54.9	61.5	65.0	68.9
4-6		46.5	52.6	58.0	60.6	64.5	67.8
7-9		41.8	43.3	53.7	58.2	59.7	61.3
10-12		29.7	32.2	42.0	46.0	47.0	46.0
1-8	89,479						
9-12	27,882						
1-12	117,361	166.1	181.5	208.6	226.3	236.2	244.0

ALL RACES

Grades	1960	1968	1970	1975	1980	1985	1990
1-3	107.7	117.3	114.9	101.9	106.4	109.7	113.7
4-6	97.3	111.1	110.1	107.9	104.8	107.5	110.5
7-9	93.6	97.6	100.7	109.2	105.4	102.7	102.3
10-12	75.1	84.1	89.5	95.3	93.6	86.5	81.5
1-8	270.6						
9-12	103.1						
1-12	373.7	410.1	415.2	414.3	410.2	406.4	408.0
% of total population	19%		22%		22%		23%

1. Source: U. S. Census of Population, 1960.

2. Sources: Philadelphia Board of Education: enrollment reports and 1967 school census. Archdiocesan Office of Superintendent of Schools.

3. Sources: Government Studies Center estimates, 1970 through 1990.

Table 3

City of Philadelphia
AGE DISTRIBUTIONS, SUMMARY, BY RACE
(In thousands, excepting averages and percents)

WHITE

	1950	1960	1970	1980	1990
0-19	470.1	451.7	376	322	280
20-64	1,068.0	837.1	641	506	398
65 on	154.5	178.7	172	170	152
Total	1,692.6	1,467.5	1,189	998	830
Growth rate		-13%	-19%	-16%	-17%
Mean effective birth rate (1)	.017	.018	.015	.018	.018
Households	485	467	430	395	365
Pop./Hsehld.	3.49	3.14	2.77	2.52	2.27

BLACK AND OTHER

	1950	1960	1970	1980	1990
0-19	126.0	215.0	314	388	415
20-64	236.2	289.9	350	444	485
65 on	16.8	30.1	41	59	76
Total	379.0	535.0	705	891	976
Growth rate		+41%	+32%	+26%	+10%
Mean effective birth rate (1)	.021	.027	.025	.024	.024
Households	100	149	205	265	295
Pop./Hsehld.	3.79	3.58	3.44	3.36	3.31

ALL RACES

	1950	1960	1970	1980	1990
0-19	596.1	666.7	690	710	695
20-64	1,304.3	1,127.0	991	950	883
65 on	171.2	208.8	213	229	228
Total	2,071.6	2,002.5	1,894	1,889	1,806
Growth rate		-3%	-5%	-0%	-4%
Mean effective birth rate (1)	.017	.020	.018	.021	.022
Households	585	616	635	660	660
Pop./Hsehld.	3.54	3.26	2.98	2.85	2.73

Source: U. S. Censuses of Population and Housing, 1950 and 1960. Government Study Center estimates, after 1960.

(1) Mean effective birth rate is derived by taking 1/5 of the population under five and dividing it by the total population. It is stated as a rate per capita to avoid confusion with standard birth rates, which are usually stated as rates per 1,000 population.

Table 4

City of Philadelphia
APRIL SCHOOL ENROLLMENTS, BY SYSTEM,
1960 to 1990, in thousands

ALL SYSTEMS

Grades	1960[1]	1965[2]	1968[2]	1970[3]	1975[3]	1980[3]	1985[3]	1990[3]
1-3	107.7	121.8	117.3	114.9	101.9	106.4	109.7	113.7
4-6	97.3	103.8	111.1	110.1	107.9	104.8	107.5	110.5
7-9	93.6	98.4	97.6	100.7	109.2	105.4	102.7	102.3
10-12	75.1	84.6	84.1	89.5	95.3	93.6	86.5	81.5
1-12	373.7	408.6	410.1	415.2	414.3	410.2	406.4	408.0
K	13.7	23.4	29.3	31.5	30.9	31.1	31.7	32.6
K-12	387.4	432.0	439.4	446.7	445.2	441.3	438.1	440.6

PUBLIC SCHOOLS

Grades	1960	1965	1968	1970	1975	1980	1985	1990
1-3		71.0	70.6	71.9	67.7	72.8	76.0	79.4
4-6		58.7	67.6	70.2	71.9	72.1	75.2	78.1
7-9		59.9	59.8	61.8	70.6	71.5	71.3	72.1
10-12		51.4	52.5	56.2	63.1	66.0	63.1	60.4
1-12	230.6	241.0	250.5	260.1	273.3	282.4	285.6	290.0
K	10.5	19.4	25.5	28.0	28.1	28.9	29.6	30.6
K-12	241.1	260.4	276.0	288.1	301.4	311.3	315.2	320.6
% in public school	62%	60%	63%	65%	68%	70%	72%	73%

NONPUBLIC SCHOOLS[4]

Grades	1960	1965	1968	1970	1975	1980	1985	1990
1-3		50.8	46.7	43.0	34.2	33.6	33.7	34.3
4-6		45.1	43.5	39.9	36.0	32.7	32.3	32.4
7-9		38.5	37.8	38.9	38.6	33.9	31.4	30.2
10-12		33.2	31.6	33.3	32.2	27.6	23.4	21.1
1-12	143.1	167.6	159.6	155.1	141.0	127.8	120.8	118.0
K	3.2	4.0	3.8	3.5	2.8	2.2	2.1	2.0
K-12	146.3	171.6	163.4	158.6	143.8	130.0	122.9	120.0
% black and other	6%	n.a.	10%[5]	11%	15%	17%	19%	20%

1. Source: U. S. Census of population, grade group distribution according to cross tabulations of enrollments by single year of age for Philadelphia Standard Metropolitan Statistical Area.

Notes on System School Enrollments (cont'd)

2. Source: Reports of Philadelphia Board of Education, Philadelphia Archdiocesan School Superintendent and Philadelphia Board of Education school census of 1967.

3. Source: Government Studies Center.

4. Nonpublic schools include Archdiocesan schools, sectarian and private schools. In 1968, all Archdiocesan schools and Catholic private schools accounted for all but about 11,300 enrollments in nonpublic school.

5. Percentages of population by color in public and nonpublic schools have been held constant at 1968 levels. The changing racial proportions by school system reflect the changing racial proportions in the total school age population as estimated. The proportion includes 1.6% Spanish speaking students, which does not correspond exactly with the classification scheme of the U. S. Census Bureau.

A Note on Method

This estimate has been developed in accordance with a technique which has been termed "mobility analysis," the main ideas of which are described in an article expected to appear in a forthcoming issue of the Journal of the American Institute of Planners. These ideas are analagous to the concepts of natural increase and net-migration. Households, however, rather than municipal areas, serve as the basis for developing expectations. In applying this method, population changes are associated with two sets of people: the people belonging to households established locally by the time of the last census and those others belonging to newly local or recently departed households.

In the course of a decade, a population will generate new household heads who will depart from old households to form new households. The population continuing to belong to the old households will thus tend to decline, as a rule, being subject not only to the export of household heads but also to the ravages of time though still bearing children. Since about 1 percent of the population may engage in household formation in a year it is not uncommon for communities with a constant number of households over a decade to lose about 10 percent of their population. In other communities, such losses are generally offset by the growth of population in new households which appears to occur at a rate above the overall average of population per household.

These observations are based on statistical findings derived by multiple linear regression analysis and, in the interest of brevity, have been stated picturesquely. The regressions have been done for areas ranging in size from a census tract to a county utilizing racial and age-specific data over the period 1930-60. Although the findings are not uniform, they tend to follow a similar relative pattern and are generally of very high statistical significance.

For the purposes of this study, county data were assembled for all the metropolitan areas with at least 3,000 persons of black and other races in 1960 and at least partly located within Pennsylvania, the Philadelphia data being broken down by planning analysis area. Counties and analysis areas with more than 3 percent nonhousehold population were excluded from the analysis. In all, 18 counties and 10 of the City's Planning analysis areas were included in the basic research. The calculations were done at the Computer Center of the University of Pennsylvania according to a program calling for calculations in double precision. Multiplication of the correlation matrix by its inverse yields numbers accurate to 6 or 7 decimal places. Correlation coefficients are in all cases well over 99 percent. The budget did not permit analysis of residuals, though similar analysis, done previously, of a random selection of 20 Pennsylvania Counties yielded residuals well distributed according to normal expectation.

The social and demographic structure of Philadelphia's population is highly complex. In addition some terms have to be defined quite arbitrarily as regards both enrollment at a given time and assignments by race and color. Close analysis necessarily reveals indefiniteness about the past, uncertainty about the present, and doubt about the future. The main trends discussed in this report involve estimated differences between present and future involving 10,000's of individuals and are clearly evident. Smaller differences, say, of two or three thousand, in future estimates may arise only from the rules of arithmetic and are of doubtful significance.